LAD985169804
Larry Landry Dump

9533269

Ecology and Environment,Inc.
(FIT)

Peer Review Tracking Form

Project No.: FT3006 Site Name/ID #: Lamy Landfill Dump
TDD#: F0001002-14 Pan #: FLA036ISAE Author: PINTER
Report Title: Narrative Summary

First Review			Second Review		
Reviewer	Date	Section	Reviewer	Date	Section
~~[illegible]~~	10-11-90	—			
[illegible]	10/12/90	—			
JRT	10/15/90				

Approved for Release:

Author Date

AFITOM Date

KHM 15 OCT 90

FITOM Date

ecology and environment, inc.
1509 MAIN STREET, DALLAS, TEXAS 75201, TEL. 214-742-6601
International Specialists in the Environment

MEMORANDUM

TO: Ed Sierra, Region VI RPO

THRU: K. H. Malone, Jr., FITOM

FROM: Mark A. Pinzel, FIT Geologist

DATE: October 12, 1990

TDD: F06-9002-14
PAN: FLA0361SAF

SUBJECT: Narrative Summary for Larry Landry Dump
Intercoastal City, Vermilion Parish, LA
(LAD985169804)

I. SITE INFORMATION/BACKGROUND

The Larry Landry Dump is located off Louisiana Highway 333, one mile north of Intracoastal City, Vermilion Parish, Louisiana. The geographic coordinates are 29°47'52" north latitude and 92°09'03" west longitude. The site is located on private land owned by Mr. Casey Pierce, who leased part of the land to Mr. Larry Landry. Mr. Landry used the land as an open dump for oil field and solid wastes from off-shore drilling rigs. The site operated in the early 1980s and ceased operations when the owner proposed raising the rent.

II. WASTE CONTAINMENT

There are no manmade impoundments on-site for containment from air, ground water or surface water routes. The piles of waste were disposed directly onto the ground.

III. PATHWAY CHARACTERISTICS

A. Ground Water

The Chicot Aquifer system underlies Vermilion Parish, and consists of thick sand and gravel deposits. The Chicot Aquifer is divided into two units called the upper sand and lower sand, in which the upper sand is connected to the Abbeville Unit. The Vermilion River recharges the Chicot Aquifer near Banker, five miles north of the site. The site is underlain by 200 feet of clay, under which is the Abbeville Unit.

The nearest well is located 2,200 feet east of the site. It is owned by (b) (6) [redacted]. The well was dug to approximately 500 feet and is screened at 500 feet. The well is used for domestic purposes only. (b) (6) [redacted] purchases her drinking water.

B. Surface Water

The site is surrounded by surface water. Drainage from the site would flow into a north-south ditch that parallels the access road, and empties into an east-west ditch that empties into the Vermilion River 1/2 mile downstream. Potential sensitive environments affected by the surface water migration are wetlands (estuarine), a state wildlife refuge and habitats used by the Peregrine falcon and the Atlantic Ridley Turtle.

C. Soil Exposure

There is a gate on the access road with a "No Trespassing" sign posted. Inorganics are known to be present at the site, and organics could exist. There are no workers on-site.

D. Air

Previous sampling indicated high concentrations of inorganics such as barium, cadmium, chromium, lead and zinc. The air pathway, therefore, is not of concern since these inorganics have low particulate/mobility potentials.

IV. DATA GAP OBJECTIVES

1. Two of the nearest residential wells should be sampled.

2. The extent of ground water use in the area needs to be determined.

3. This sampling may involve an extensive well survey.

4. Soil samples and sediment samples should be taken on and near the waste piles (source characterization) and along the surface water pathway from the site.

5. Surface water samples should be taken along the surface water pathway from the site as near the sources as possible.

6. Exact distances to the sensitive environments must be ascertained.

REF. 07

SUBRA COMPANY

NO. 11 SOUTHWEST DRIVE • SOUTHWEST INDUSTRIAL PARK • P. O. BOX 9813 • NEW IBERIA, LA. 70562-9813 • (318) 367-2216

August 17, 1984

(b) (6) [redacted]

Dear Johnny:

Subra Company personnel at your request met in Intracoastal City with yourself and Mr. Casey Pierce on the morning of August 14, 1984. Mr. Pierce then provided access to and led the above mentioned people onto a portion of his land in the Intracoastal City area which he designated as the site previously leased to Larry Landry for disposal of waste. Mr. Pierce then gave a general description of the area and the method used to dispose of the waste. Subra Company personnel looked over the site and designated sampling locations.

The results of the analyses performed on the samples collected from the site are enclosed. Samples of soil were collected by boring with a hand auger and digging with hand tools until a layer of solid material hampered further excavation. The soil samples ranged from one-foot composite samples to samples of 18". The solid waste on the site was visible on the surface in some areas and buried up to 18 inches deep in other areas. The results of the soil samples indicate contamination of the soil by excessive levels of salt, oil and grease, barium, cadmium, chromium, lead, and zinc.

Samples of water were collected from the marsh on the southeast side of the site, from a surface depression on the southwest side of the barren area, and from the ground on the northeast corner of the barren area. The ground on the northeast corner of the barren area gave way under the weight of a man. An excavation of the area resulted in groundwater being encountered at 15". The results of the water samples indicate contamination of the surface water in the barren area by salt, oil and grease, and barium. The marsh sample indicated the surface water salt concentration was not due to tidal influence but leaching from the soil on which it had collected, presumably due to rainfall. The groundwater sample was contaminated by excessive levels of salt, oil and grease, barium, cadmium, chromium, lead, and zinc. According to the criteria for hazardous waste, the groundwater which is a leachate on the site exceeds the toxicity levels established for barium, cadmium, chromium, lead, and zinc. This would indicate the waste at the site is hazardous.

A pile of exposed drums was present on the site and around the base of an oak tree 500 feet southeast of the barren area. The drums southeast of the area contained substantial quantitaties of waste as well as some contained collected rainwater. Samples were collected of rainwater in the drums, a black solidified tar-like material on the ground, and the ground saturated with the waste. The salt content of the tar-like material and the ground were extremely elevated. The rainwater had leached some salt and oil and grease from the drum contents.

In summary, the soil and water samples indicate the site contains waste with high concentrations of salt, oil and grease, barium, cadmium, chromium, lead, and zinc. The extent of the contamination both vertically and horizontally cannot be determined by this initial survey of the area. Also, the possibility of contamination by organic compounds should be investigated.

The samples will be retained should you require additional parameters be analyzed.

Sincerely,

Wilma Subra
President

ml

Enclosures

cc: (b) (6) [redacted]

Chemical Analyses of Soil Samples Collected August 14, 1984 From a Site Previously Leased to Larry Landry in Intracoastal City for Disposal of Waste

Location	Salt (ppm)	pH	Oil & Grease (ppm)	Barium (ppm)	Cadmium (ppm)	Chromium (ppm)	Lead (ppm)	Zinc (ppm)
Center of barren area (1 foot composite sample)	11,428	6.49	7,702	Composite:				
				250	12	400	560	11,150-
Center of barren area (18" layer)	7,425	5.58	8,259					
Northeast corner of barren area* (15" layer)	6,563	8.51	5,195					
South side of barren area (11" layer)	20,558	5.74	503	900	2	135	104	455
Surface scraping on an east-west transect across site	11,262	6.55						

ppm = parts per million

*The ground gave way under the weight of a person. Groundwater encountered at 15".

Chemical Analyses of Water Samples Collected August 14, 1984 From a Site Previously Leased to Larry Landry in Intracoastal City for Disposal of Waste

Location	Salt (ppm)	pH	Oil & Grease (ppm)	Barium (ppm)	Cadmium (ppm)	Chromium (ppm)	Lead (ppm)	Zinc (ppm)
Groundwater from northeast corner of barren area (15" deep)	11,766	8.51	3,275	1,950	4	227	133	276
Surface water from small surface sump area on southwest side of barren area	5,528	6.98	37	1.3	N.D.	N.D.	N.D.	N.D.
Surface water from marsh at southeast corner of site	652	6.60						

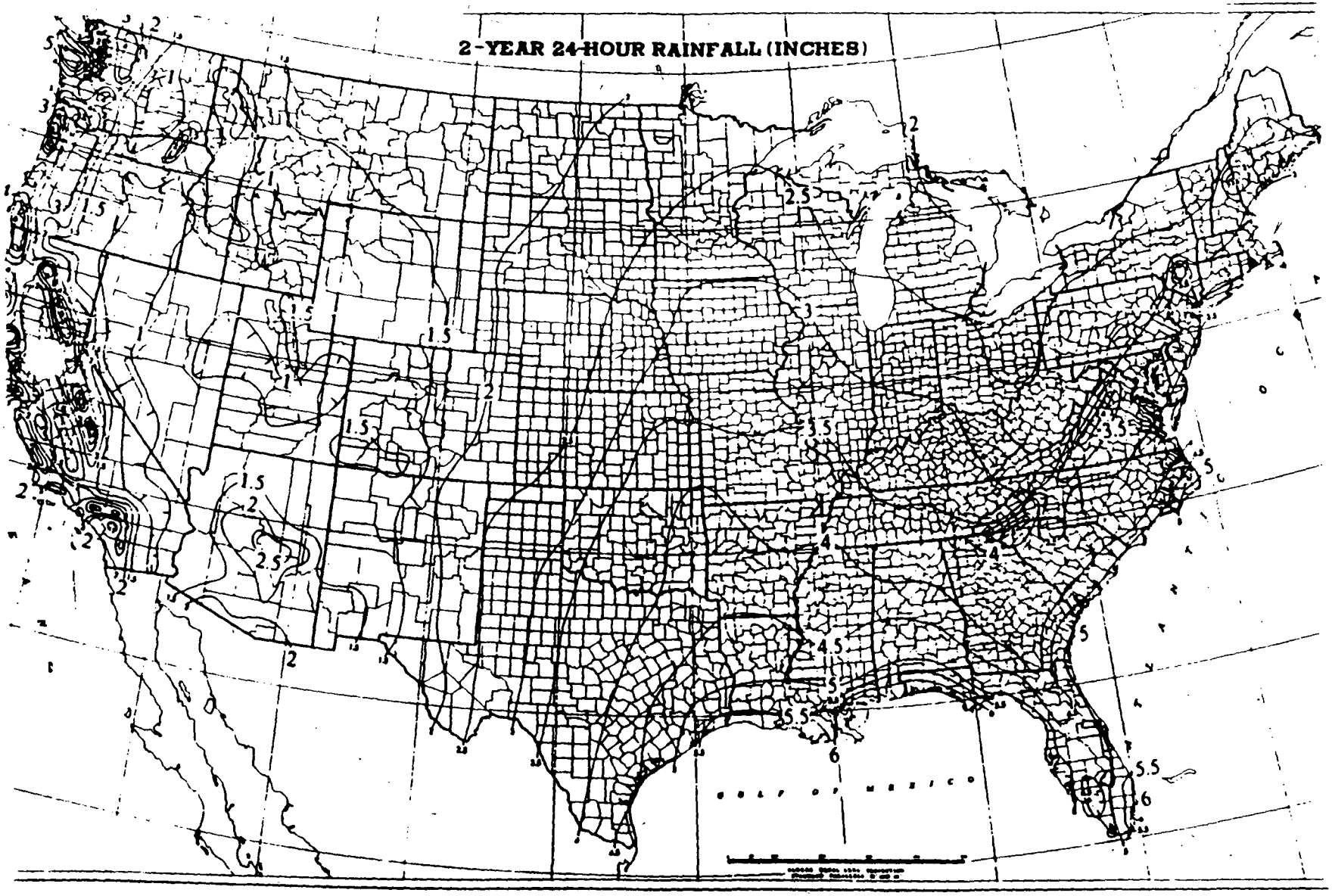
N.D. = None Detected

ppm = parts per million

Chemical Analyses of Waste Samples Collected August 18, 1984 From a Site Previously Leased to Larry Landry in Intracoastal City for Disposal of Waste

Sample	Salt (ppm)	pH	Oil and Grease (ppm)
Rainwater collected in drum containing solidified black tar-like material	248	7.47	47
Sample of ground saturated with black tar-like material	3,870	5.44	
Sample of solidified black tar-like material	1,892	4.23	

ppm = parts per million


2-YEAR 24-HOUR RAINFALL (INCHES)

REF. 08

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 6
1445 ROSS AVENUE, SUITE 1200
DALLAS, TEXAS 75202-2733

November 21, 1989

MEMORANDUM

SUBJECT: Sole Source Aquifers

FROM: Deborah A. Vaughn-Wright DVW
Region 6 NPL Coordinator
Superfund Site Assessment Section (6H-MA)

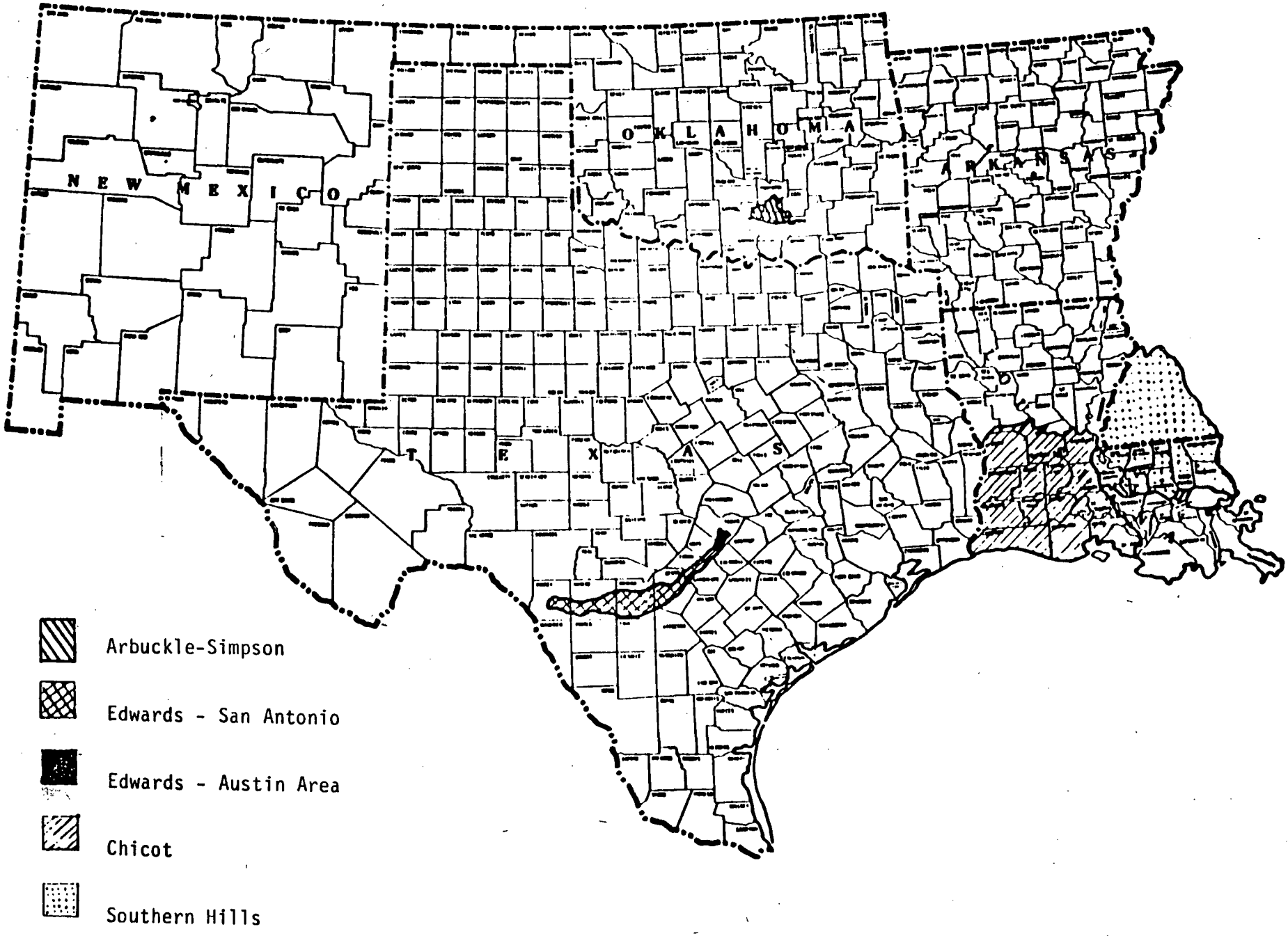
TO: Ed Sierra
FIT RPO
Surveillance Hazardous Waste Section (6E-SH)

Please provide the FIT with these maps showing the Sole Source Aquifers in Region 6. If the FIT ever have any questions about Sole Source Aquifers they may contact Clay Chesney at (214) 655-6446.

1989

EPA REGION VI

Sole Source Aquifers



updated 1-16-85, in separate document

REF. 09

INITIAL DRAFT

LOUISIANA WATER CONTROL REGULATIONS

DEPARTMENT OF ENVIRONMENTAL QUALITY
OFFICE OF WATER RESOURCES

MARCH 9, 1984

This public document was published at a total cost of $1200.00 200 copies of this document were published in this first printing at a cost of $150.00. The total cost of all printings of this document, including reprints, is $1200.00. This document was published by the Louisiana Department of Environmental Quality, Post Office Box 44066, Baton Rouge, Louisiana 70804, to develop water control regulations under authority of the Louisiana Environmental Quality Act, L.R.S. 30:1094 et seq. This material was printed in accordance with standards for printing by State Agencies established pursuant to R.S. 43:31.

Bacterial Criteria (BAC)

1. Primary Contact Recreation
2. Secondary Contact Recreation
3. Public Water Supply
4. Shellfish Propagation

Designated Water Uses

A. Primary Contact Recreation
B. Secondary Contact Recreation
C. Propagation of Fish and Wildlife
D. Public Water Supply
E. Shellfish Propagation
F. Agriculture
G. Outstanding Natural Resource Waters

BASIN VERMILION-TECHE RIVER (06)

AGENCY ID	STREAM DESCRIPTION	DESIGNATED WATER USES						
		A	B	C	D	E	F	G
060010	Vermilion River - Headwaters to Intracoastal Waterway	X	X	X			X	
060020	Vermilion River - Intracoastal Waterway to Vermilion Bay (Estuarine)	X	X	X				
060030	Freshwater Bayou Canal - Intracoastal Waterway to Control Structure (Estuarine)	X	X	X				
060040	Bayou Petite Anse - Headwaters to Bayou Carlin (Estuarine)	X	X	X				
060050	Bayou Carlin (Delcambre Canal) - Lake Peigneur to Bayou Petite Anse (Estuarine)	X	X	X				
006060	Bayou Tigre - Headwaters to Bayou Petite Anse (Estuarine)	X	X	X				
060070	Bayou Petite Anse - Bayou Carlin to Vermilion Bay (Estuarine)		X	X				
060080	Lake Peigneur (Estuarine)	X	X	X				
060090	Indian Creek and Indian Creek Reservoir	X	X	X	X			
060100	Cocodrie Lake	X	X	X				
060110	Spring Creek - Headwaters to Cocodrie Lake (Scenic)	X	X	X				X
060120	Bayou Cocodrie - from U. S. Hwy. 167 to the Bayou Boeuf - Cocodrie Diversion Canal - Bayou Beouf and Bayou Courtableau (Headwaters of Bayou Teche to Interstate 10 (Scenic)	X	X	X				X

Please note that the PreScore report for this site is located in the files in the HRS room. Please see one of the HRS coordinators for more information.

SITE NAME Larry Landry Dump

TDD # FOL-8910-34

PAN FLA0361PAA

CERCLID LAD985169804

PEER REVIEW TRACKING FORM

LAD985169804

Project No: FT1306 Site Name/ID#: Larry Landry Dump

TDD#: F06-8910-34 PAN#: FLA0361PAA Author: Lensing

Report Title: Preliminary Assessment

First Review			Second Review		
Reviewer	Date	Section	Reviewer	Date	Section
TS	12/20	✓	[illegible]	12/29	—
[illegible]	12/20	✓			
[illegible]	12/29	✓			
[illegible]	1/3/90				
[illegible]	1/3/90				

Approved for Release: for Thomas Lensing 1/3/90

Author Date

AFITOM Date

[illegible] 1/3/90

FITOM Date

Federal Register

Friday
December 23, 1988

Part III

Environmental Protection Agency

40 CFR Part 300

Hazard Ranking System (HRS) For Uncontrolled Hazardous Substance Releases; Appendix A of the National Oil and Hazardous Substances Contingency Plan; Proposed Rule

ecology and environment, inc.
1509 MAIN STREET, DALLAS, TEXAS 75201, TEL. 214-742-6601
International Specialists in the Environment

MEMORANDUM

TO: Ed Sierra, Region VI RPO

THRU: K. H. Malone, Jr., FITOM

FROM: Thomas Lensing, FIT Biologist

DATE: January 2, 1990

TDD: F-06-8911-34
PAN: FLA0361PAA

SUBJECT: Preliminary Assessment for the Larry Landry Dump
Intracoastal City, Vermillion Parish, LA (LAD985169804)

I. Site Information

The Larry Landry Dump (LLD) is located off Louisiana Highway 333, one mile north of Intracoastal City, Vermillion Parish, Louisiana (Figure 1). The geographic coordinates are 29°47'52" north latitude and 92°09'03" west longitude. The site is located on private land owned by (b) (6) [redacted], who leased part of the land to Mr. Larry Landry. Mr. (6) Landry used the land as an open dump for various oil field and solid wastes from offshore drilling rigs (Reference 6).

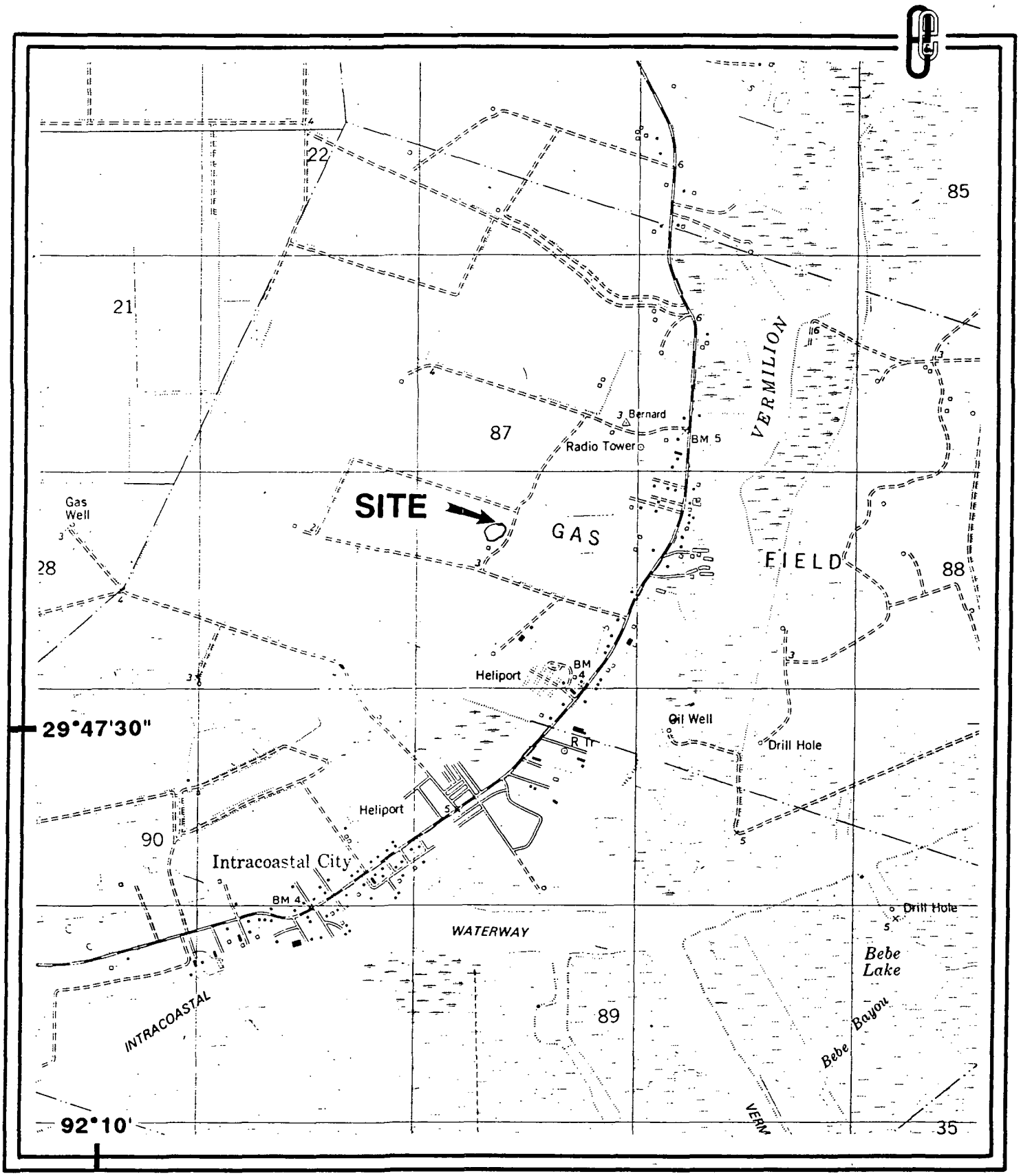
The purpose of this investigation is to determine from the off-site reconnaissance inspection and data collection whether the site poses a threat to human health and the environment.

II. Background/Operating History

The LLD operated in the early 1980s. Operations were terminated at the site when the owner proposed raising the rent (Reference 6). Waste handling and disposal practices consisted of hauling the waste in a truck and indiscriminately dumping the waste on the ground (Figure 2, Reference 6).

(b) (6) [redacted], a concerned citizen, and Mr. Paul Conzelmann of (5) SUBRA Laboratories in New Iberia, Louisiana, conducted a sampling inspection at the site in 1984. Analysis of on-site soil and water samples indicated high concentrations of salt, oil, grease, barium, cadmium, chromium, lead and zinc. The samples were not analyzed for organic constituents.

(b) (6) [redacted]



N

0 2000 ft.

FIGURE 1

SITE LOCATION MAP

LARRY LANDRY DUMP

INTRACOASTAL CITY, LOUISIANA

LAD985169804

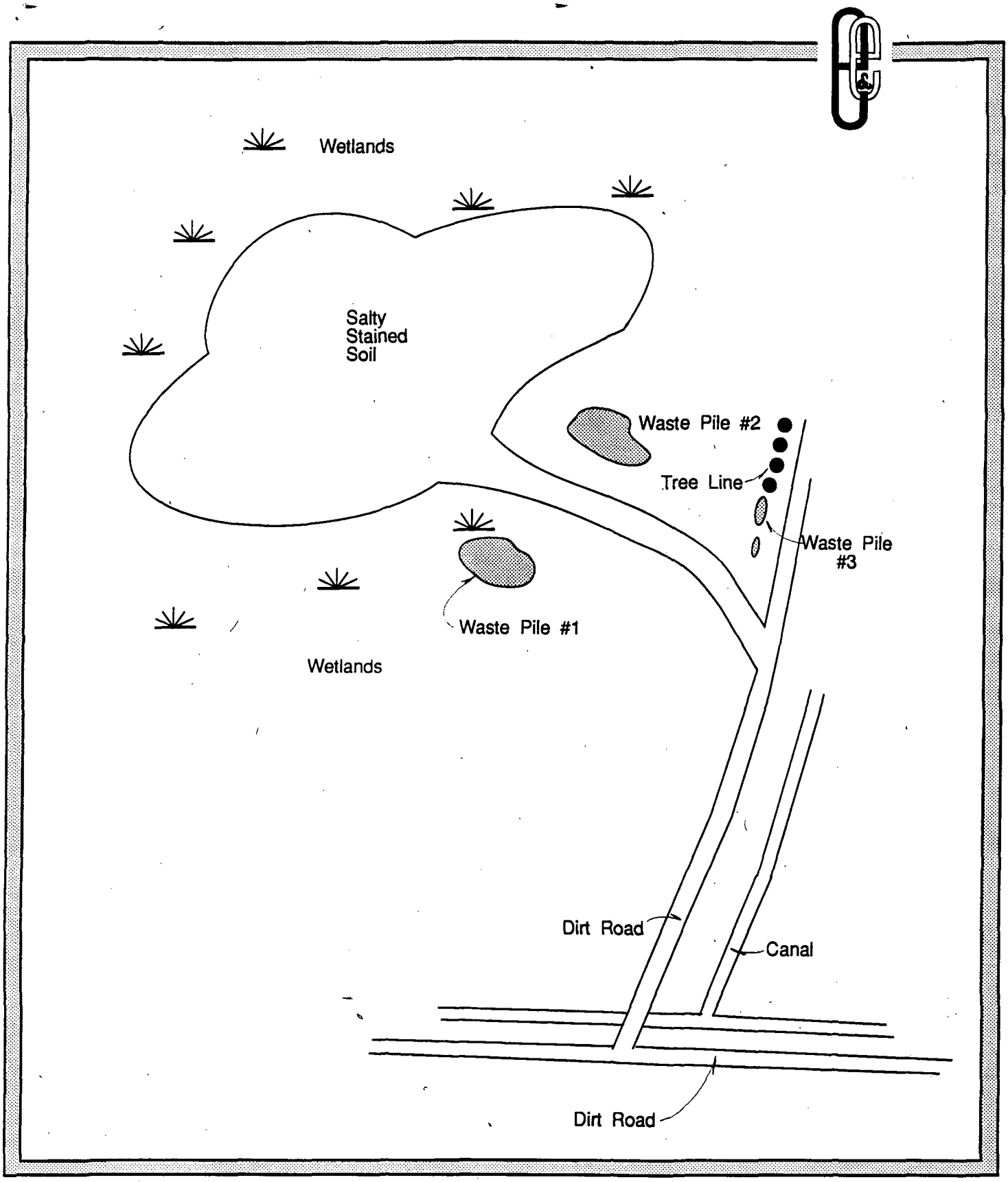


FIGURE 1
SITE SKETCH
LARRY LANDRY DUMP
INTRACOASTAL CITY, LOUISIANA
LAD985169804

N

Not To Scale

An off-site reconnaissance inspection was conducted by Thomas Lensing of the FIT on November 14, 1989. (b) [redacted]x and Mr. Conzelmann accompanied the FIT to the site. Due to a locked gate at the entrance, the FIT was unable to assess the condition of the site. (b) (6) [redacted] and Mr. Conzelmann supplied the FIT with 1984 photographs of the site. A contact log and photographs are attached. The extent of involvement of Louisiana Department of Environmental Quality (LDEQ) is unknown.

III. Waste Containment/Hazardous Substance Identification

The site operated as an open dump for various solid and liquid wastes generated from offshore oil rigs. The site operator did not initiate any artificial means of containment from the air, ground water or surface water routes. The piles of waste were disposed directly onto the ground. The containers in which the wastes were placed are deteriorating (Photographs 4, 5, 6, 10).

IV. Pathway Characteristics

A. Air Pathway Characteristics

The site has been sampled only by (b) (6) [redacted] and Mr. Conzelmann. Analysis of the samples revealed high concentrations of inorganic constituents such as barium, cadmium, chromium, lead and zinc. The gaseous and particulate mobility potentials of these contaminants are low. The site was not sampled for organics (Reference 7).

B. Ground Water Characteristics

The Chicot Aquifer system consists mostly of thick sand and gravel deposits that dip and thicken southward from southern Vernon and Rapides Parishes. The aquifer thins slightly to the west and continues into Texas. To the east, the aquifer thickens toward the axis of the Mississippi embayment trough where it is cut or overlain by the alluvium of the Atchafalaya and Mississippi Rivers; thus, the Chicot Aquifer system and the Atchafalaya aquifer are hydraulically connected (Reference 3, page 4).

East of Calcasieu Parish, the massive end of the Chicot Aquifer system has been divided into two units called the upper sand and the lower sand. The upper sand is connected to the Abbeville Unit (Reference 3, page 4). This shallow sand is a distinct hydrologic unit throughout most of the lower Vermillion River Basin. The thickness of sand usually ranges from 100 to 250 feet. Due to large scale ground water use for irrigation, the Vermillion River has been recharging the Chicot Aquifer near Bancker, five miles north of the site (Reference 3, page 21).

A geohydrologic cross section of the site's location revealed that the LLD is underlain by 200 feet of clay. Underlying the clay are 150 feet of freshwater sand. This is the Abbeville Unit (Reference 3, page 27-28).

The nearest well, located 2,200 feet east of the site, is owned by Ms. Antoinne Hebert. Ms. Hebert informed the FIT that her well was dug in

1975 to a depth of approximately 500 feet. The well casing is perforated at 500 feet. (b) (6) uses her well water for domestic purposes and purchases her own drinking water. Residential Well Sampling Information sheets are attached.

A net precipitation of 21.01 inches has been estimated (Reference 12).

C. Surface Water Characteristics

The site is surrounded by surface water (Photograph 1). Since waste disposal practices were poorly initiated and the operator made no effort to establish any run-on control, leachate migration from the site to the adjoining marsh is highly probable (Photographs 1-4, Reference 6). Contaminants from the site could enter surface water from any direction. The drainage would flow into a north-south ditch that parallels the access road. The drainage ditch empties into a west-east ditch that empties into the Vermillion River one-half mile downstream. The Vermillion River makes up the next five miles of the 15 mile segment. The final nine miles of the surface water pathway are in Vermillion Bay (Reference 2). The Vermillion River is designated usable for primary and secondary recreation and for propagation of fish and wildlife (Reference 9). Potential sensitive environments affected by the in-water segment consist of wetlands (estuarine), a state wildlife refuge and habitats used by the endangered Falco peregrinus anatum (peregrine falcon) and Lepidochelys kempii (Atlantic Ridley Turtle) (Reference 2; Reference 11).

The estimated upgradient drainage area is less than 50 acres (Reference 2). The FIT estimated that the Vermillion River and Vermillion Bay have an annual average stream flow of less than five cubic feet per second (cfs). The site is located in a 100 year flood plain (Reference 4). The two year, 24 hour rainfall is estimated at 5.5 inches (Reference 10).

D. On-Site Pathway Characteristics

During the reconnaissance inspection, a gate on the access road was locked and "No Trespassing" signs were posted. Inorganics are known to be present at the site and organic compounds could exist (Reference 7). The site owner made no effort to contain the wastes from the surrounding wetlands.

V. Targets

The Maximally Exposed Individual (MEI) for an air target is the (b) (6) residence. (b) (6) lives 2,200 feet east of the site. The population within four miles was estimated from a house count on a U.S.G.S. 7.5 Minute Topographic Map and by multiplying the number of houses times the most recent U.S. census factor for Vermillion Parish (2.98 people per household) (Reference 4). There are approximately 510 people within four miles of the site. Land use in the area consists of industrial with intermittent farmland (Reference 5). Estuarine wetlands

and habitats known to be used by endangered species, the Peregrine Falcon and the Atlantic Ridley Turtle, are within four miles of the site (Reference 2; Reference 11).

The (b) (6) residence also represents the MEI for ground water. It is believed that all residents within four miles of the site obtain water from private wells. Ground water is also used for irrigation of rice and crawfish farms (Reference 3, p. 21, 5).

Ground water that supplies the residential and irrigation wells is drawn from the Chicot Aquifer, which is designated as a Sole Source Aquifer (Reference 8). There are no drinking water intakes within the 15 mile in-water segment. The Vermillion River is deemed usable for primary and secondary recreation and for propagation of fish and wildlife (Reference 9). There is no on-site resident population. "No Trespassing" signs are posted along the access road. The site is completely surrounded by surface water (Photograph 1).

VI. Conclusions

The LLD was used as an open dump for various solid and liquid oil field wastes. The wastes were indiscriminantly dumped directly onto the ground. The site operator made no effort to contain the wastes from the surrounding wetlands. Photographs indicate that most of the wastes are stored in corroding and deteriorating drums. The site was sampled for inorganics. High levels of barium, cadmium, chromium, lead and zinc have been detected. No organic analysis was conducted. The closest residence is the home of (b) (6) who operates the closest ground water well. Ground water is used for domestic and irrigation purposes. The water is drawn from the Chicot Aquifer, which is designated as a Sole Source Aquifer in southwestern Louisiana. Surface water is deemed usable for primary and secondary recreation and for propagation of fish and wildlife. Along the 15 mile migration pathway, surface water encounters wetlands, a state wildlife refuge and habitat used by the endangered Peregrine Falcon and Atlantic Ridley Turtle.

The FIT was unable to acquire documentation of other regulatory involvement. The extent to which the LDEQ was involved with the site is unknown.

RESIDENTIAL WELL SAMPLING INFORMATION

Well #

1. Name, address and phone number of resident (include county and zip code)

(b) (6)

Vermillion Parish

2. Date well was dug 1975

3. Depth of well 500 feet

4. Depth to static water Unknown

5. Is the well cased? Yes x No ___ Unknown ___

If so, to what depth? Unknown

What type of casing is used? Stainless Steel

6. Is well screened? Yes x No ___ Unknown ___

7. Is the well used for residential purposes, or for watering livestock?

The well water is used for all domestic purposes except for drinking.

8. Any other pertinent information?

Ms. Hebert purchases her drinking water.

RESIDENTIAL WELL SAMPLING INFORMATION

Well #

1. Name, address and phone number of resident (include county and zip code)

(b) (6) [redacted]

2. Date well was dug Unknown

3. Depth of well 500 feet

4. Depth to static water Unknown

5. Is the well cased? Yes ___ No ___ Unknown x

   If so, to what depth? N/A

   What type of casing is used? Unknown

6. Is well screened? Yes x No ___ Unknown ___

7. Is the well used for residential purposes, or for watering livestock?

   Well water is used for cooking, bathing, etc. Not for drinking.

8. Any other pertinent information?

   Mr. Richard purchases his own drinking water.

STATE OF LOUISIANA
DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT
OFFICE OF PUBLIC WORKS

WATER RESOURCES
TECHNICAL REPORT
NO. 33

THE OCCURRENCE OF HIGH CONCENTRATIONS OF CHLORIDE IN THE CHICOT AQUIFER SYSTEM OF SOUTHWESTERN LOUISIANA

Prepared by
UNITED STATES DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
In cooperation with
LOUISIANA DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT
OFFICE OF PUBLIC WORKS

1984

STATE OF LOUISIANA

DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT

OFFICE OF PUBLIC WORKS

Water Resources

TECHNICAL REPORT NO. 33

THE OCCURRENCE OF HIGH CONCENTRATIONS OF CHLORIDE IN THE CHICOT AQUIFER SYSTEM OF SOUTHWESTERN LOUISIANA

By

Dale J. Nyman

U.S. Geological Survey

Prepared by

UNITED STATES DEPARTMENT OF THE INTERIOR

GEOLOGICAL SURVEY

In cooperation with

LOUISIANA DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT

OFFICE OF PUBLIC WORKS

1984

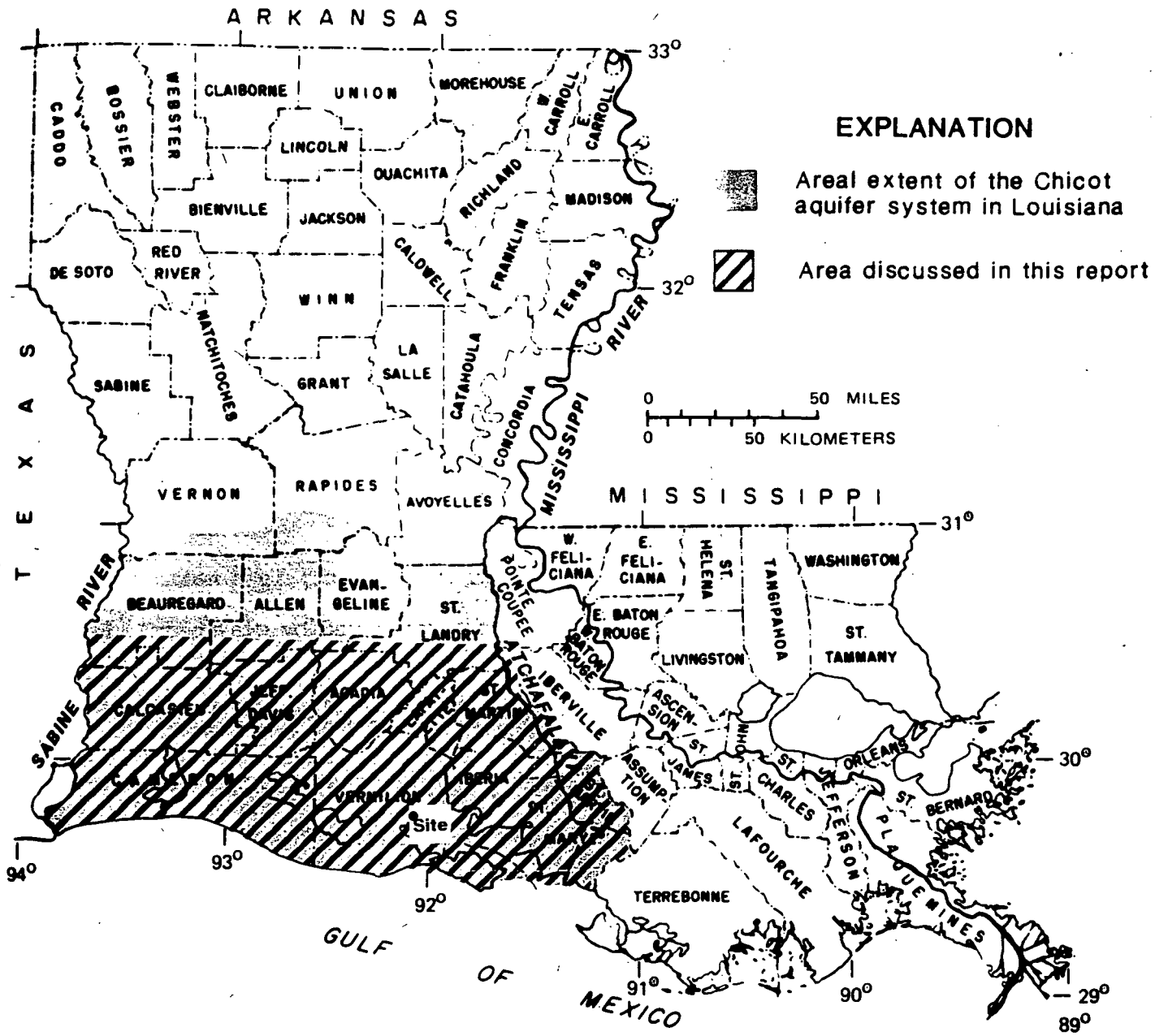


Figure 1.--Location of project area.

(deceased) formerly of the Department of Environmental Sciences at Louisiana State University, and to Mr. R. H. Wallace, Jr. of the Gulf Basin Hydrogeology Project (U.S. Geological Survey). Mr. R. M. Lawrence, Offshore Division Geologist for AMOCO, New Orleans office, and Mr. Fines Martin, Division Manager for Superior Oil Co. at Lafayette, Louisiana, provided information for the hydrogeologic sections. Historical insight was provided by Mr. H. G. Chalkley (deceased) of the Sweetlake Land and Oil Co., and by Mr. V. S. Scoggins (deceased), founder of Coastal Water Wells, Inc., of Welsh, Louisiana.

Special appreciation is expressed to D. G. Sheppard, S. T. Mumme, and J. R. McKay; formerly graduate students at Northeast Louisiana University, Louisiana State University, and Louisiana Technical University, respectively; who assisted in the preparation of the geohydrologic maps.

This study was made through a cooperative program between the U.S. Geological Survey and the Louisiana Office of Public Works, Department of Transportation and Development. Electrical logs of oil-test wells were made available by the Louisiana Office of Conservation, Department of Natural Resources, and the U.S. Geological Survey, Conservation Division (now Minerals Management Service).

CHICOT AQUIFER SYSTEM

The Chicot aquifer system, as used in this report, is a massive sand in the outcrop area and the northern half of the project area; it is divided downdip into two or more sand layers separated by clay beds. East of Calcasieu Parish the massive sand of the Chicot aquifer system has been divided into two units called the "upper sand" and "lower sand"; whereas in Calcasieu and Cameron Parishes, the massive sand has been divided into three units called the "200-foot", "500-foot", and "700-foot" sands (table 1). The "upper sand" is connected to the "200-foot" sand, Abbeville unit, and Atchafalaya River alluvium; thus, together these units constitute essentially one hydrologic unit. The "lower sand" is connected to the "700-foot" sand. The "500-foot" sand is largely isolated except where it merges with the "700-foot" sand toward the outcrop area (fig. 2).

Geohydrology

The Chicot aquifer system was named by Jones and others (1954, p. 7) for a deltaic sequence consisting mostly of thick sand and gravel deposits that dip and thicken southward from southern Vernon and Rapides Parishes. The aquifer thins slightly to the west and continues into Texas. To the east the aquifer thickens toward the axis of the Mississippi Embayment trough where it is cut by or overlain by the alluvium of the Atchafalaya and Mississippi Rivers; thus, the Chicot aquifer system and Atchafalaya aquifer are hydraulically connected. The aquifer units thicken gulfward but become increasingly subdivided by clays and individual sand beds may thin and become finer textured.

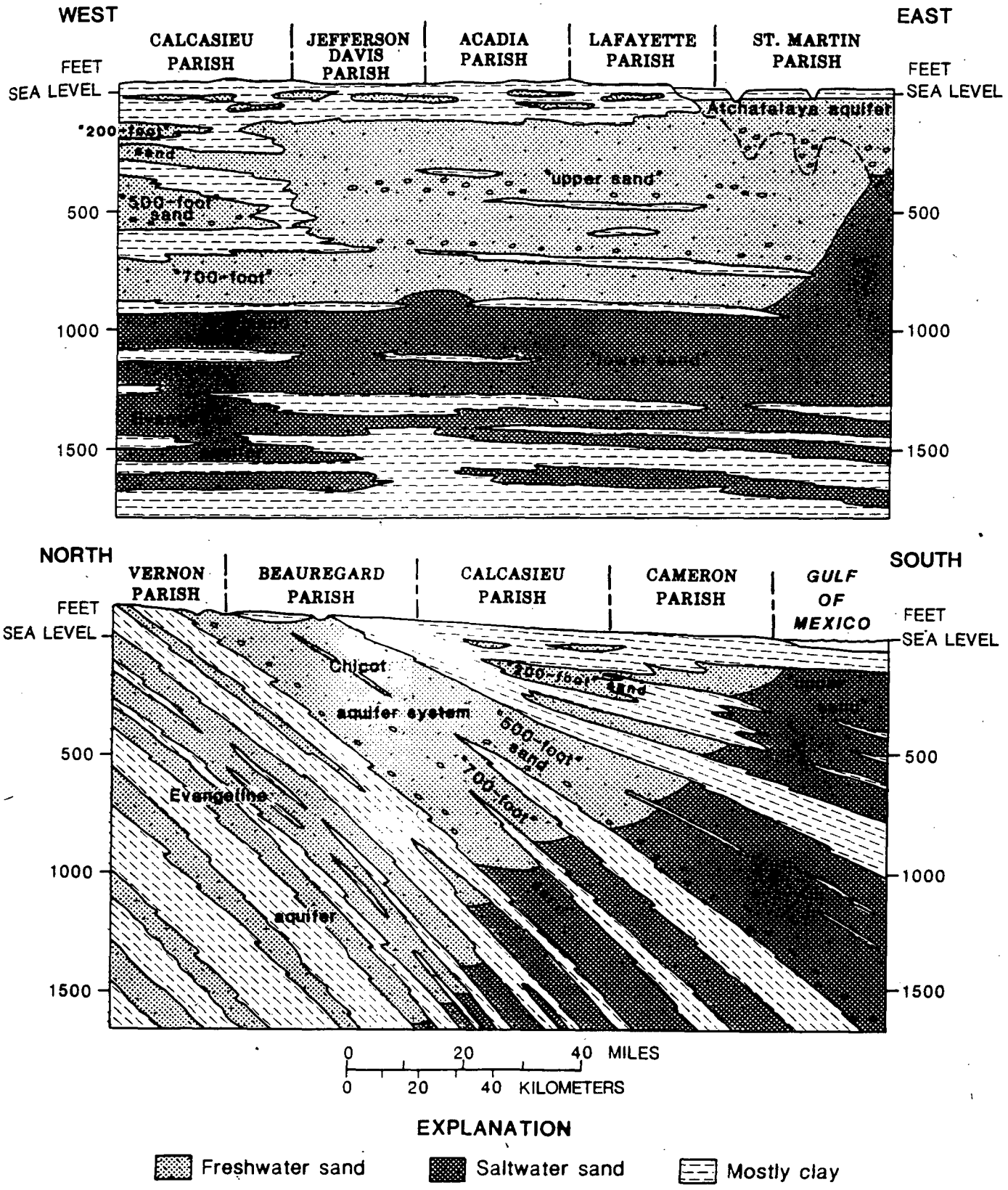


Figure 2.--Idealized geologic sections through southwestern Louisiana.

regional subsurface correlation of terrace formations is not obvious, therefore the names "upper sand" and "lower sand" are used to designate units of the Chicot aquifer system in the eastern part of the report area.

Ground-Water Hydrology

Water Levels

Water levels in the Chicot aquifer system have ranged from near land surface to about 150 ft below land surface. Water levels are lowest in the Lake Charles industrial area and highest near rivers in the recharge area (pl. 1).[4] Annual water-level fluctuations range from 2 to 3 ft in essentially unpumped areas in parts of Beauregard and Allen Parishes and from 20 to 40 ft near pumping centers for rice irrigation in Jefferson Davis and Acadia Parishes. Total pumpage from the Chicot aquifer system averaged about 1 Bgal/d in 1980 (Walter, 1982). Centers of concentrated pumping cause cones of depression in the potentiometric surface of the aquifer that induce the flow of water from all directions causing a slope (gradient) in the water-level surface toward the area of heavy pumping. The slope of the water-level surface is indicative of the rate of ground-water movement; the steeper the slope the faster ground water moves through the aquifer, assuming aquifer transmissivity and other factors are constant.

Water levels in wells tapping the "200-foot", "500-foot", and "700-foot" sands in the Lake Charles area are significantly different near pumping centers. Levels of the "200-foot" sand are the nearest to land surface, levels of the "500-foot" sand generally are farthest below land surface, and the water level in the "700-foot" sand is generally intermediate. Drawdown of the potentiometric surface of the "500-foot" sand was primarily caused by industrial ground-water withdrawals, which averaged about 100 Mgal/d during 1980 (Walter, 1982). The center of the drawdown cone in the "200-foot" sand is primarily related to withdrawals of water from the "500-foot" sand and leakage between the two sands. The cone of depression for the "700-foot" sand is caused by ground-water withdrawals averaging about 10 Mgal/d and leakage to the "500-foot" sand.

The water-level map for 1903 (Jones and others, 1954, pl. 17; 1956, pl. 13) shows the natural southward gradient that probably existed before extensive ground-water development began. Rain falling on the recharge areas of the Chicot aquifer system during pre-development years provided base flow to the Sabine, Vermilion, and Atchafalaya Rivers (and other coastal streams) and also created the hydrostatic pressure that flushed saltwater southward and stabilized the saltwater wedge in the coastal area.

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[4] The regional potentiometric map is based on the massive sand in the northern part of the area, the "upper sand" in the coastal area, and the "200-foot" sand in the Lake Charles area.

The water-level gradients that sloped southward in 1900 have now been reversed in the coastal area and slope northward toward pumping centers in Calcasieu, Jefferson Davis, and Acadia Parishes (pl. 1). The northward gradient is very low (generally less than 1 ft/mi) in the coastal wetlands area because of little pumping and because of recharge from vertical leakage. Because of these factors, the northward movement of the freshwater-saltwater interface has been very slow and probably averages less than 100 ft/yr in the gulf coast area. However, a potentially serious problem may develop if the water-level gradient near the coast is increased. Saltwater encroachment, which has occurred in the Texas-Gulf region at Houston and Orange (Baker and Wall, 1976, p. F21; Gabrysch and McAdoo, 1972, p. 10), could render large parts of the Chicot and other aquifers unusable.

Water Movement

Ground water moves from areas of recharge to areas of discharge, which under current conditions coincide with pumping centers. The recharge areas are indicated by the large patterned area of the water-level map (pl. 1); the pumping centers are generally located in areas indicated by closed contours. Water pumped in southwestern Louisiana may originate as rain falling on the outcrop area to the north, as flow from the Atchafalaya River to the east, or as water moving downward through the clays to the Chicot aquifer system from marshlands in the coastal area to the south. There is very little movement of ground water from the west toward Lake Charles because of pumping at Orange, Texas. Additional recharge is received through direct interconnections with underlying aquifers (Whitfield, 1975, p. 12), or directly from streams, such as the Calcasieu River in the reach above Kinder and the Vermilion River in the reach below Abbeville.

Recharge from the outcrop area in Beauregard and Allen Parishes and areas to the north supplies about 50 percent of the total water pumped from the Chicot aquifer system, and most of the water pumped in Calcasieu and Jefferson Davis Parishes, according to analog-model studies (A. L. Zack and A. N. Turcan, written commun., 1975). Recharge to the aquifer from the outcrop area in Evangeline Parish supplies less than 5 percent of the total water pumped. The amount of flow through Evangeline Parish is small because an east-west trending zone of low transmissivity (Fader and Harder, 1954) north of Ville Platte inhibits ground-water movement. On the water-level map (pl. 1) this zone is indicated by closely spaced water-level contours in central Evangeline Parish. In general, therefore, the amount of recharge in the outcrop area to the north is not determined solely by the amount of rainfall, but also by the aquifer's ability to transmit the water away from the recharge area.

The Atchafalaya aquifer (Jones and others, 1956 p. 293) and the Chicot aquifer system are essentially one continuous hydrologic unit from St. Landry Parish to near St. Martinville. Water levels in the Atchafalaya River alluvium change with river stage. Water levels are higher in the alluvium, causing water to move down gradient to the west into the Chicot aquifer system. The water-level map (pl. 1) indicates recharge from the Atchafalaya alluvium because of the essentially north-

base of freshwater to minimize saltwater coning. Further ground-water development in most of eastern Cameron Parish for domestic use and small municipal and industrial supplies should cause no significant changes in the rate of saltwater movement, but large industrial development should be carefully studied as saltwater encroachment could shorten the life of the water supply.

The aquifers in most of the western half of Cameron Parish probably have contained saline water since the sediments were deposited.

High-Chloride Water in the Lower Vermilion River Basin

The lower Vermilion River basin is the location of unique saltwater problems in the Abbeville unit and in the "upper sand" of the Chicot aquifer system (table 1). Salinity problems are not related to offshore saltwater encroachment, but represent local saltwater problems caused by: (1) movement of saltwater from the Vermilion River into the Abbeville unit, and (2) the upward movement of salty water from the "lower sand" into the "upper sand," which is increasing owing to pumping.

Abbeville unit.--The Abbeville unit of the Chicot aquifer system is the "shallow sand" described by Harder, and others (1967, p. 35). They stated, "This shallow sand is a distinct hydrologic unit throughout most of the [lower Vermilion River] basin and generally consists of fine to sandy silt at the top and grades downward within a few tens of feet into sand and gravel. The thickness of the sand usually ranges between 100 to 250 feet." Before large-scale irrigation began, ground-water discharge from the Abbeville unit supplied the base flow of the Vermilion River. However, because of ground-water withdrawals in Vermilion Parish and parishes to the north, water levels in the Abbeville unit gradually declined below the channel of the Vermilion River. By 1951, the river began recharging the aquifer in the Bancker area (fig. 7). Since that time brackish water has infiltrated the Abbeville unit on the infrequent occasions when brackish water was pushed that far upstream (Harder and others, 1967, p. 37-40). The saline-water contribution from the Vermilion River to the Abbeville unit has been very small in the Bancker area and the saline water that has infiltrated is being slowly flushed out. (See chlorograph of well Ve-626, fig. 8.) The Vermilion River at Bancker contains water of more than 200 mg/L chloride only 15 percent of the time (fig. 9). Flushing action (decreasing salinity) will continue until either the chloride concentration in the aquifer reflects the average annual chloride concentration of the river, the infiltration of rainwater continues to locally dilute the salty water in the aquifer, or saline water again recharges the aquifer in the Bancker area following an unusual hydrologic event, such as a series of very high tides accompanying storms. After the high tides occur, the flushing (or dilution) phase will be repeated.

The Abbeville unit in the reach of the Vermilion River between Little Bayou and the mouth is being recharged by brackish water more frequently than in the Bancker area because of tides bringing brackish water upstream during periods of low stream flow. Because of this the

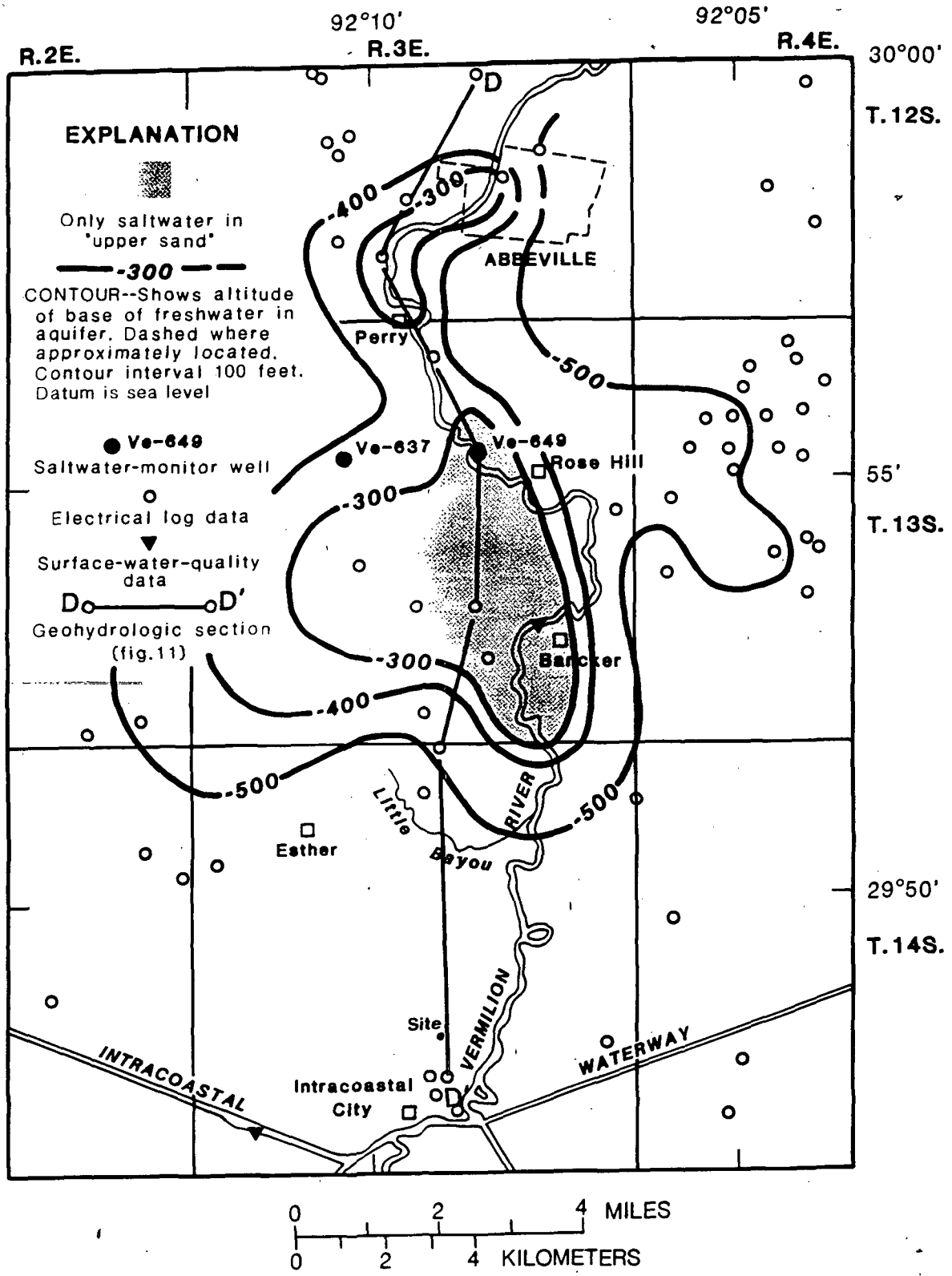


Figure 10.--Base of freshwater in the "upper sand" in the lower Vermilion River basin.

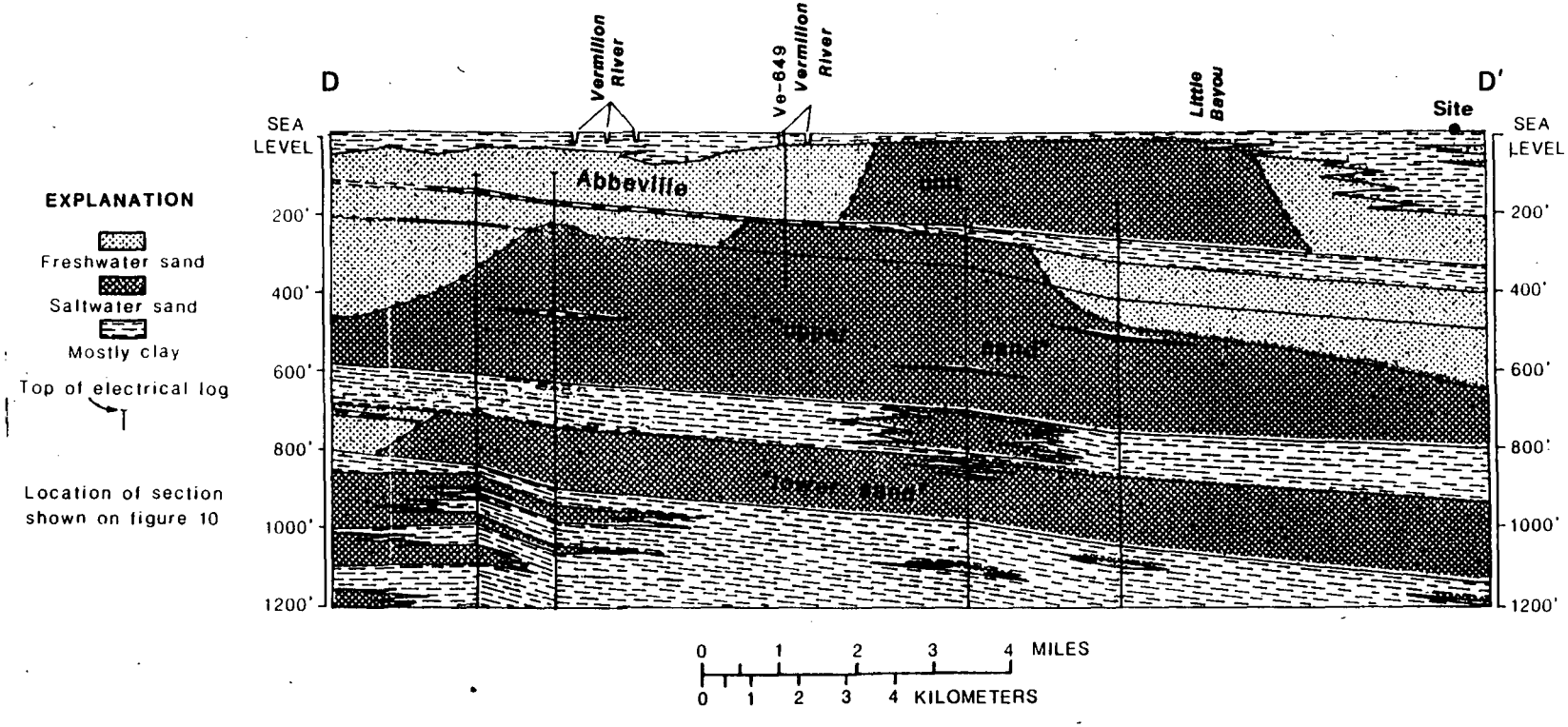


Figure 11.--North-south geohydrologic section along lower Vermilion River.

A line of wells injecting freshwater near the toe of the freshwater-saltwater transition zone, or in an area where the base of freshwater has a steep gradient, has the local effect of reducing or reversing the water-level gradient and generally slowing or temporarily stopping saltwater encroachment. The major drawback to injection wells is the cost of treating the injection water and the cost of maintaining the wells. (See Bruington and Seares, 1965.)

SUMMARY AND CONCLUSIONS

Saltwater encroachment is a potential problem in the three most heavily pumped units of the Chicot aquifer system--the "upper sand" east of Lake Charles and the "500-foot" and "700-foot" sands of the Lake Charles industrial area. Ground-water withdrawals have created pumping cones in all three aquifers, reversing the natural southerly gradients in the coastal areas. These reversed gradients are causing a very slow northward movement of the freshwater-saltwater interface, and some of the saltwater-monitor wells have shown a significant increase in chloride concentration.

This slow rate of saltwater movement is primarily caused by water-level gradients of less than 1 ft/mi in the coastal zone (wetlands areas and offshore). The gradients are low because of vertical recharge and the relatively small amount of ground-water development in the wetland areas.

Although there has been little change in chloride concentration, some areas of the "upper sand" are very susceptible to encroachment--such as along the Atchafalaya River basin near New Iberia, in western Vermilion Parish south of Gueydan, and along the Vermilion River south of Abbeville. In north-central Cameron Parish chlorides have increased more than 20 (mg/L)/yr at well Cn-92, primarily in response to irrigation pumping. The saltwater front is currently essentially static; but if pumping for rice irrigation increases significantly causing additional water-level declines, the northward movement of the saltwater will accelerate. Freshwater resources in areas irrigated for rice in southern Calcasieu and Jefferson Davis Parishes could deteriorate with the northward movement of saltwater.

Water-level declines in the rice-growing area increase the differential artesian pressure between the saline Chicot "lower sand" and the freshwater "upper sand," thereby increasing the movement of salty water upward through openings in the confining layer separating the two aquifers. Existing saltwater highs are now enlarging at a faster rate in response to water-level declines caused mostly by irrigation pumping. Local saltwater mounds and ridges, for example in Vermilion Parish, are enlarging in response to this mechanism.

The Abbeville unit of the Chicot aquifer system in Vermilion Parish has reflected the quality of water in the Vermilion River since water levels in the aquifer were drawn down below the river level. Near Bancker

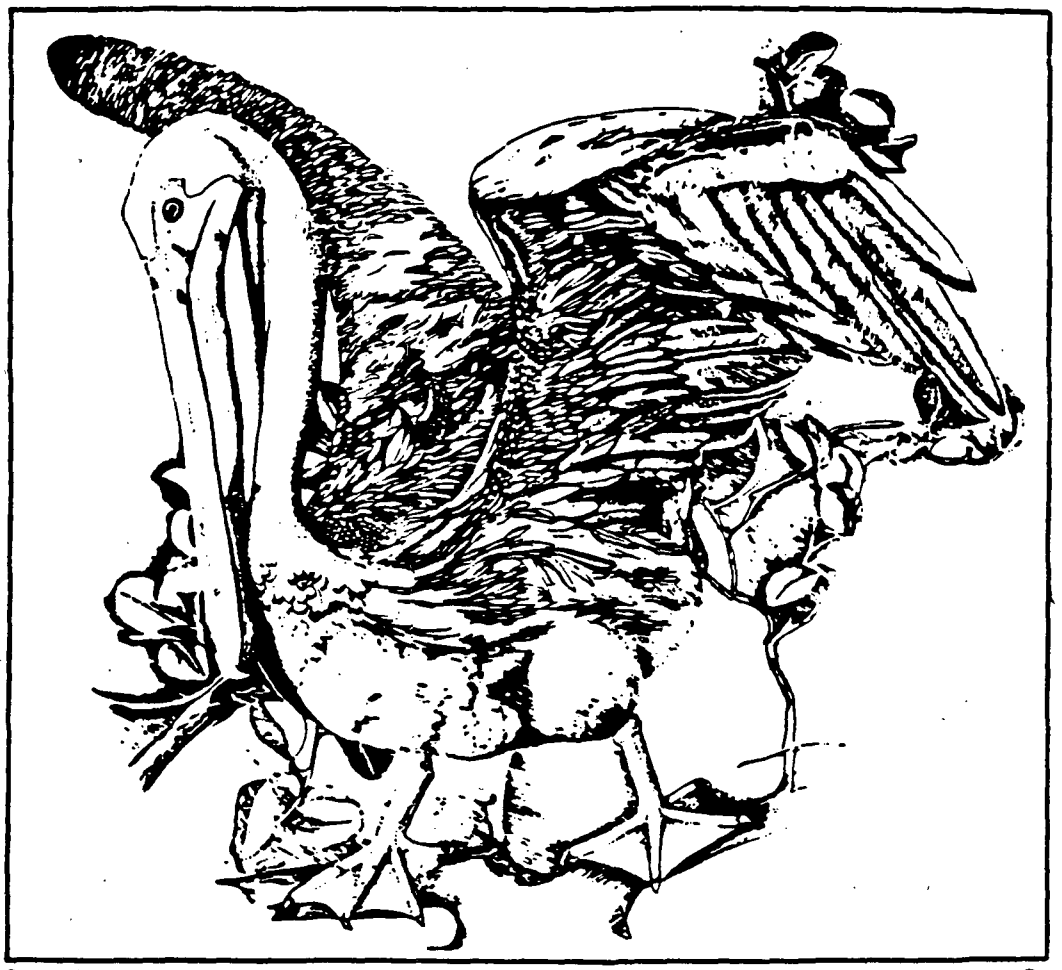
the Abbeville unit generally is recharged by freshwater more than 85 percent of the time; however, high tides may cause inland movement of seawater in the river and the temporary recharge of brackish water into the aquifer. This brackish water is then diluted and the salinity reduced because of recharge by the fresh river water that follows.

The Abbeville unit near Intracoastal City is also recharged directly from the Vermilion River. Because this area is near the mouth of the Vermilion River, the river water contains chloride concentrations exceeding 1,000 mg/L more than 4 months each year, generally during the low-flow season (August-November). This brackish water has been recharging the aquifer since 1951. The nearly continuous recharge of brackish water since that time has caused a saltwater body to grow beneath the river. Currently (1983), chloride concentrations are increasing 30 (mg/L)/yr north of the mouth of the Vermilion River and 5 (mg/L)/yr to the east, but there is probably saltwater movement in all directions. If current conditions continue, salty water in the Abbeville unit will begin moving into the "upper sand," which provides water to most of the high-capacity wells in the area. Saltwater recharge will continue along the Vermilion River until the upstream movement of brackish water from Vermilion Bay is controlled.

Increases in salinity of water in the "500-foot" sand of the Lake Charles industrial area are not related to coastal saltwater encroachment. The increases are mostly the result of vertical movement of saltwater from the "700-foot" sand related to changes in water level caused by pumping. The increases in chloride concentration noted by industries after 1970 were primarily caused by water-level declines from 1967 to 1969. Saltwater in the "700-foot" sand is moving laterally in response to pumping, and northward saltwater encroachment is evident in the lower half of Calcasieu Parish. The largest increase in chloride concentration observed to date (1982) is 25 (mg/L)/yr within the southern city limits of Lake Charles at well Cu-767. The lowest chloride concentration was 370 mg/L during 1965 and the highest 770 during 1981-82. The use of Sabine River water to replace ground-water withdrawals should lessen saltwater problems in the Lake Charles area.

Most of the current saltwater problems in the project area result from saltwater coning--where large-capacity wells tap a sand that contains saltwater at the base of the sand unit. Wells screened above the coastal freshwater-saltwater interface, and wells screened above local inland saltwater bodies, may have upconing problems. Such problems have been best documented locally in Vermilion, Jefferson Davis, and Calcasieu Parishes, but may occur near the freshwater-saltwater interface in all of the major sand units. Inland saltwater bodies include an area of at least 150 mi^2, and affected wells typically yield water having a chloride concentration of 50 to 500 mg/L.

THREATENED AND ENDANGERED ANIMALS OF LOUISIANA

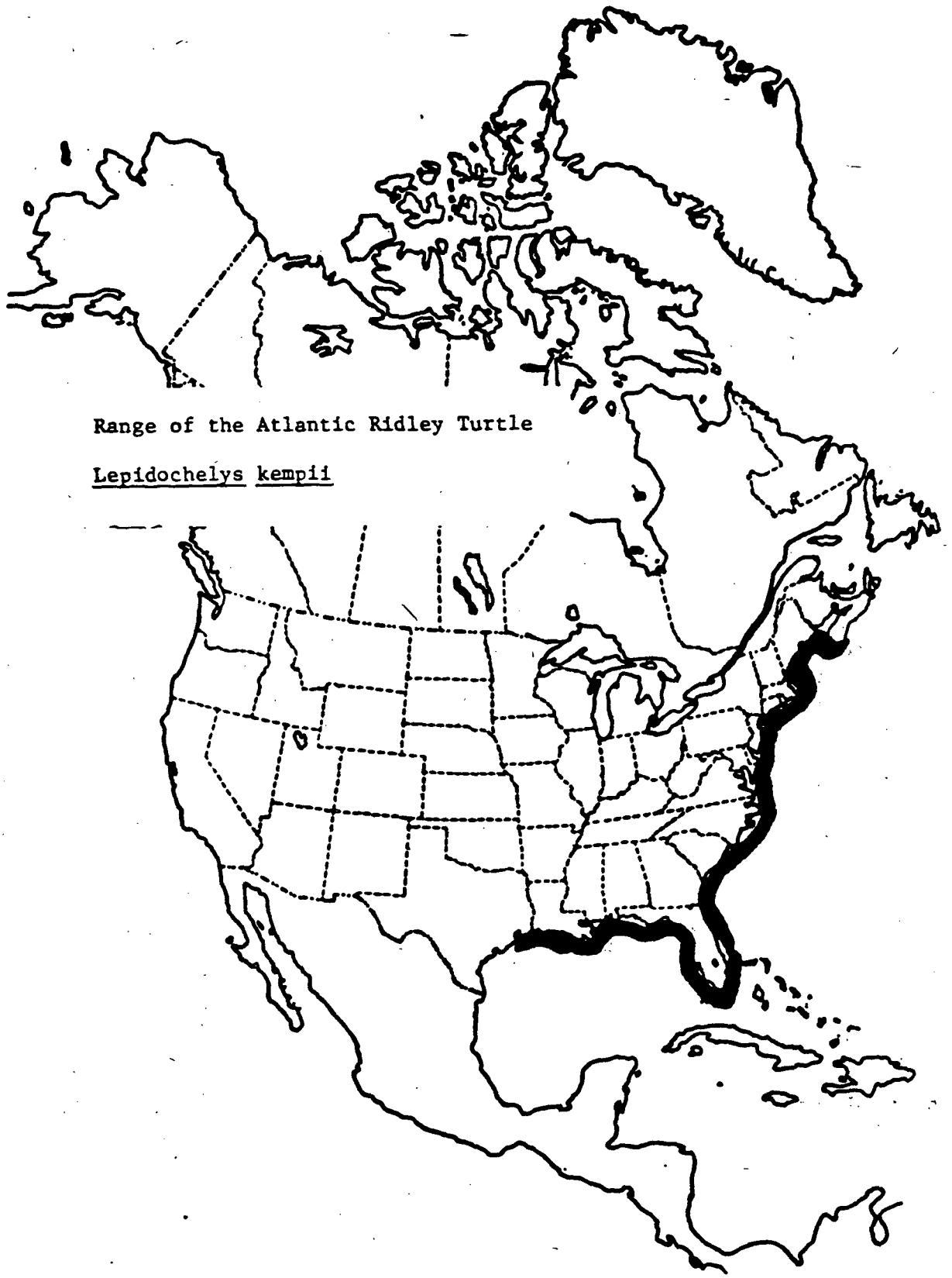


SARA SMITH "BROWN PELICAN" ©

Compiled by M.B. Watson

Louisiana Department of Wildlife and Fisheries

1981



Range of the Atlantic Ridley Turtle

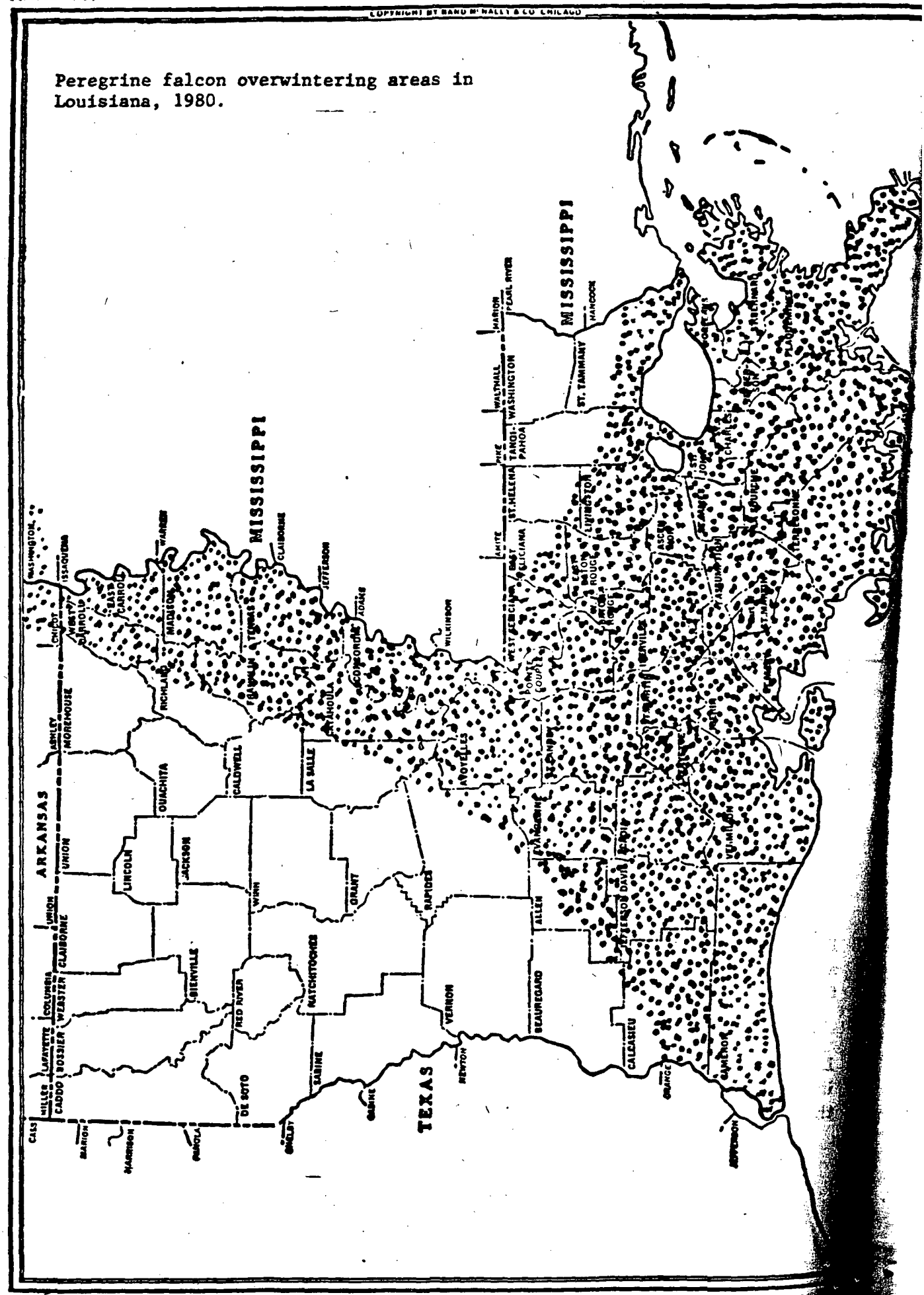
Lepidochelys kempii

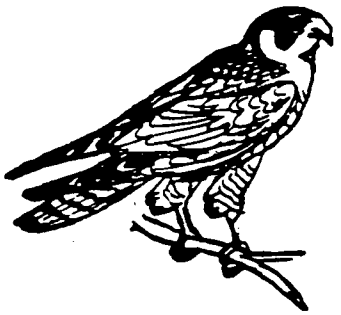
THREATENED AND ENDANGERED SPECIES OF LOUISIANA

Common Name	Scientific Name	Status[1]
Panther, Florida	Felis concolor coryi	E
Wolf, Red	Canis rufus	E
Whale, Black Right	Eubalaena glacialis	E
Whale, Sei	Balaenoptera borealis	E
Whale, Giant Sperm	Physeter catodon	E
Seal, Caribbean Monk	Monachus tropicalis	E
Crane, Whooping	Grus americana	E
Eagle, Bald	Haliaeetus leucocephalus	E
Falcon, American Peregrine	Falco peregrinus anatum	E
Falcon, Arctic Peregrine	Falco peregrinus tundrius	E
Pelican, Brown	Pelecanus occidentalis	E
Warbler, Bachmans	Vermivora bachmanii	E
Woodpecker, Ivory-billed	Campephilus principalis	E
Woodpecker, Red-cockaded	Picoides (=Dendrocopos) borealis	E
Alligator, American	Alligator mississipiensis	E, T, T(s/a)
Turtle, Atlantic ridley	Lepidochelys kempii	E
Turtle, Green Sea	Chelonia mydas	T
Turtle, Hawks "	Eretmochelys imbricata	E
Turtle, Loggerhead Sea	Caretta caretta	T
Turtle, Leatherback	Dermochelys coriacea	E

1. E = Endangered, T = Threatened, T(s/a) = Threatened, similar in appearance to an endangered species, but not endangered in the area of occurrence.

Peregrine falcon overwintering areas in Louisiana, 1980.





PEREGRINE FALCON
Falco peregrinus anatum
F. p. tundrius

The peregrine falcon is the famous "duck hawk" and has become rare in the U.S. dur to chlorinated hydrocarbon contamination in the aquatic environment.

DESCRIPTION: The head of the Peregrine Falcon is black with heavy moustachial stripes. The upper body is slate-blue barred with dark brown. The primary feathers are dark brown, but the tail feathers are barred like the back tipped with light yellow-brown. The throat and belly are white to sienna-orange with narrow stripes on the chest and dark brown bars on the belly and flanks. The beak is slate-blue with a yellow cere, the eyes are dark brown and the feet and legs are yellow to greenish-yellow with black claws. The birds range in size from 13-19 inches. The females are much larger than the male.

PREFERRED HABITAT: The species in Louisiana is likely to be found only near the Gulf. The preferred habitat of the Peregrine is rocky ledges, however they will nest in trees in flat terrain. There are no breeding Peregrines in Louisiana.

FOOD HABITS: The Peregrine falcon feeds primarily on other birds. They usually hunt their prey in the air and kill by diving on the flying bird striking it with their talons. They then catch the dead bird in air or follow it to the ground where they break the neck of its prey. Primary prey are bluejays, flickers, meadowlarks and pigeons. As indicated above, the falcon will also take ducks. The falcon's eyes are placed so it can see straight ahead, to the sides, or below.

LIFE HISTORY: Falcons usually are sexually mature at three years. After mating, the eggs are laid in clutches of four usually in late March and April. Incubation last about 33 days. The female does most of the incubating while the male hunts.

The Falcons prefer high places such as cliffs to build their nests, but they will utilize buildings in areas where there are abundant pigeon populations.

ATLANTIC RIDLEY TURTLE

Lepidochelys kempii

The Atlantic ridley is the smallest of the Atlantic sea turtles. If captured it becomes hysterical and will often die without apparent cause. The ridley has been used for food and probably still is in places where environmental contiousness is low or where environmental law is flagrantly ignored. This comment holds for all sea turtles.

DESCRIPTION: The Atlantic ridley is our only sea turtle with an almost circular carapace which is from 23 to 27 1/2 inches long. Adult ridleys weigh between 80-100 pounds. The turtle is olive green above and yellow on the underside. The ridley has 5 costal scutes (plates on the shell) with 4 enlarged scutes underneath along the margin on the bridge. It also has a small internal scute at the candal (tail) end.

PREFERRED HABITAT AND RANGE: The optimum habitat of the Atlantic ridley appears to be shallow water, associated with red mangrove. Its range is chiefly in the Gulf of Mexico occasionally appearing along the Atlantic coast as far north as Nova Scotia in summer.

FOOD HABITS: Based upon stomach analysis the only food taken by the turtle is crabs although it is likely that other food is taken.

LIFE HISTORY: Very little is known about the ridley except that it apparently lays its eggs in the Florida keys during the three winter months.

ecology and environment, inc.

International Specialists in the Environment

Job Number FT-1306

Larry Landry Dump
Intercoastal City, LA
LAD985169804
Vermillion Parish

[redacted]

E & E Job Number FT-1306

Telephone Code Number 214-742-6601

Site Name Larry Landry Dump

State/City Louisiana, Intercoastal City

TDD F06-8910-34

PAN FLA0361PAA

SSID LAD985169804

Start/Finish Date _____ / _____

Book 1 of 1

FO6-8910-34 FLA0361PAA
11-14-89

Proposed work: Offsite reconnaissance at Larry Landry Dump, Intracoastal City, LA. Before conducting recon, FIT will interview concerned citizen, John Bordeaux, who escorted site to EPA. T. Lansing - Team Leader. Weather - 80°F, cloudy, intermittent showers.

850 - Left motel for Lafayette, La.

10[45] - Arrived at Lafayette, rented car from Budget and waited for baggage.

105[0] - I was informed that my baggage did not get on the flight. I needed the CA camera for the recon.

105[5] - Left Lafayette airport for Abbeville to meet with (b) (6) and (b) (6)

11[45] - Met (b) (6) and Paul Conzelmann of SUBRA Co. SUBRA performed analysis of samples taken at Larry Landry Dump by (b) (6)

1145 - The following info was supplied by (b) (6) & Conzelmann.

The owner of the property is (b) (6) leased the land to Larry Landry. Landry used the land as a dump for various oil field waste.

FO6-8910-34 FLA0361PAA
11-14-89

The site operated from 1974 1980 to about 1983.

Landry used a truck with an 18 yard bed, like a garbage truck, to haul waste from the coast and directly dump on Reese's land. When the lease expired, Reese raised the rent on the land & Landry took his operation elsewhere.

1205 - Landry & (b) (6) showed me photographs of the site and surrounding area. I asked him for copies of these photos and he said he would mail them to me at Dallas Office.

The photos showed that the land was used as a dump, several rusted & corroded drums were seen. The site is completely surrounded by a marsh.

1230 - FIT, (b) (6) & Conzelmann left for the Larry Landry Dump.

1254 - Arrived at entrance road to the site. The gate was locked and NO Trespassing signs were posted

FO6-8910-34 FLA036182AA
11-14-89

1258- Left entrance to site and went to [redacted] residence for additional information. [redacted] showed FIT pictures again and asked FIT if he wanted any copies.

1305- FIT played photos that he would get for files copies of.

1310- [redacted] showed FIT agent with important geologic information.

Myers, Dale USGS. Effects of Ground Water withdrawals on water levels and Salt water encroachments in SW Louisiana 1967

Water Resource Bulletin #10 Phone # for Geologic Survey is [redacted]

1325- [redacted] told me that Vermillion Health Dept. would have info on the site. Phone [redacted]

1330- Left [redacted] residence and took [redacted] & Congelmann back to their autos at original meeting place.

1405- Dropped off [redacted] Congelman. & FIT took lunch

1445- FIT checked into hotel.

FO6-8910-34 FLA036182AA
11-14-89

1500- FIT called AFITSM and discussed day's activities.

1525- Called Vermillion Health Dept talked to Russell Boudreaux. [redacted] told me LDEQ LDB CDEQ has all info on site. I should call Lafayette office at [redacted] and talk to [redacted]

[redacted] will not be in office today. Will try tomorrow.

Work Completed: Get information from [redacted] Congelman about site history & waste practices, etc. Congelman will mail FIT photos & data sheets of sample analysis. USGS (Baton Rouge) will mail report to Dillon Office. Could not get near the site because entrance gate was locked.

/s/ T. J. Kenny

FO6-8910-34 FLA036IPAA

11-15-89

Proposed work: Identify target populations and sink in vicinity of Jury Fourby Camp

weather- 83°F. Sunny, Winds SW 10mph

0906- Arrived at site entrance. Gate locked

Distance from gate entrance to commercial/industrial use is .6 miles. Land use in the area consists of shipping along Vermilion River, and oil field.

0913- Arrived at Antoine Hebert residence. Depth of well 500ft. Well is stainless steel cased and screened at 500ft. Date well was dug - 1975. Used for kitchen, bathroom and garden [redacted] Address [redacted] well - 500ft. Not sure about screen setting. Richard does not drink water. Uses water for cooking, bathing, etc [redacted]

0927- Left [redacted] residence. [redacted] from Antoine.

T. Jarvis

FO6-8910-34 FLA036IPAA

11-15-89

Traced overland migration of surface drainage. From the site, the surface drainage would flow in a drainage ditch about 200 feet. This ditch would empty into another drainage ditch the drainage would flow .6 miles before emptying into The Vermillion River.

0955. Called AFI TDY and told him my work was complete. I am scheduled to depart Lafayette at 1330.

1300- Arrived at airport. Returned rental car.

1310- Flight to Dallas was canceled because of the weather.

1315- Called FTDM and told him I would return to Dallas 11-16-89 in the morning

Work Completed: Target identification completed.

T. Jarvis

FOG 8910-34. FLA036PAA
11-16-89

0810-12
0730 - Left Hotel for airport.
0739 - Arrived at airport. Boarded on
Flight 3162 American Eagle to Dulles.
0810 - Called FITSM and told him
I would be in around 1030-1100.

T. Jones

(1A)

Ecology and Environment, Inc.
(FIT)

Peer Review Tracking Form

Project Number FT1306 Site Name Lamy Landry Dump
TDD F06900214 PAN FLA036ISAF Author M. Pinzel
Report Title SSI WorkPlan
CERID Number LAD985169804

	Review 1	Review 2	Review 3	Review 4	Review 5
HRS Office	TMS 11/15				
Editorial	AL 11/16	AL 11/20	AL 11/26	AL 11/27	
Author	MP 11/20				
AFITOM					
FITOM	KHam 11/26				
Other					

Approved for Release:

Author 27 Nov 20 Date

AFITOM Date

KHam 27 Nov 20

FITOM Date

Completed, Marcus and K need to sign.

F0160.PM3

1A. Cost Center: FT 1306	FIT ZONE II CONTRACT Contract Number 68-01-7347 TECHNICAL DIRECTIVE DOCUMENT (TDD)	2. TDD Number: F06900214
1B. Account Number: FLA036ISAF		2A. Amendment: ☐ Administrative — ☐ Technical

3A. Priority: ☐ High ☐ Medium ☒ Low	3B. Key EPA Contact: Name: B. J. Canelles Phone: 655-6740

4A. Estimate of Technical Hours:	4B. Subcontract:	4C. Estimate of Subcontract Cost:	5A. SSID Number:	5B. CERID Number:
500				LAD985169804

5C. EPA Site Name:	5D. City/County/State:
LARRY LANDRY Dump	Intracoastal City / Vermillion / LA.

6. Desired Report Format:	7A. Activity Start Date:	7B. Estimated Completion Date:
☑ Formal Report ☐ Standard Report ☐ Other (Specify): ☐ Letter Report ☐ Formal Briefing	1/15/91	7/31/91

8A. Type of Activity:

☐ PA ☐ RCRA-PA ☐ HRS Support ☐ Enforcement Support ☐ Training
☑ SSI ☐ RCRA-SI ☐ QA Support ☐ Program Management ☐ General Technical Assistance
☐ ESI ☐ Special Studies ☐ Equipment Maintenance

8B. FIT/SCAP Goal: Will Deliverable Meet a Unit of the Goal? ☑ Yes ☐ No

9. General Task Description: Prepare a site screening Inspection SSI

10. Specific Elements:

☐ Additional Scope Attached

11. Interim Deadlines:

12. Comments:

13. Authorizing: Ed Sierra (Signature)	☐ RPO ☐ DPO ☐ PO	14. Date: 02/28/90
15. Received by: K. N. Malone (Contractor FITOM Signature)	☒ Accepted ☐ Accepted with Exceptions (Attached) ☐ Rejected	16. Date: 3/1/90

Distribution: Sheet 1 (White)—FITOM Copy
Sheet 2 (Green)—RPO Copy
Sheet 3 (Canary)—ZPM, WDC Copy
Sheet 4 (Pink)—PO, WDC Copy
Sheet 5 (Goldenrod)—CO, WDC Copy

F001A097

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION VI
1445 ROSS AVENUE, SUITE 1200
DALLAS, TEXAS 75202

DATE: 1/9/90

SUBJECT: FIT Task Request

FROM: William H. Taylor, Chief (6H-MA)

TO: Ed Sierra (6E-SH)

XX ☒ New Assignment
☐ Amendment

Please task the FIT to complete the following work:

Key EPA Contact:
Name: B. I. CANGELOSI Phone: 655-6740

. Desired Report Format:
☒ Formal Report ☐ Standard Report ☐ Other (Specify): _____
☐ Letter Report ☐ Formal Briefing

SSID Number: 6277

CERID Number: LAD 985169801

EPA Site Name: LARRY LANDRY DUMP

. City/County/State: INTRACOASTAL CITY / VERMILLION / LA

Type of Activity:
☐ PA ☐ RCRA-PA ☐ HRS Support ☐ Enforcement Support ☐ Training
☒ SSI ☐ RCRA-SI ☐ QA Support ☐ Program Management ☐ General Technical Assistance
☐ ESI ☐ Special Studies ☐ Equipment Maintenance

FIT/SCAP Goal: Will Deliverable Meet a Unit of the Goal?
☒ Yes ☐ No

General Task Description:
Prepare a Site Screening Inspection SSI

Specific Elements:

☐ Additional Scope Attached

CONCURRENCE: Bill Taylor
Bill Taylor, Chief

DWW
Debbie Vaughn-Wright

ecology and environment, inc.
1509 MAIN STREET, DALLAS, TEXAS 75201, TEL. 214-742-6601
International Specialists in the Environment

MEMORANDUM

TO: Ed Sierra, Region VI RPO

THRU: K. H. Malone, Jr., FITOM

FROM: Marcus A. Pinzel, FIT Geologist

DATE: November 27, 1990

TDD: F06-9002-14
PAN: FLA0361SAF

SUBJECT: Screening Site Inspection Work Plan
Larry Landry Dump
Intracoastal City, Vermilion Parish, LA
(LAD985169804)

Attached is the Screening Site Inspection Work Plan for the Larry Landry Dump.

SCREENING SITE INSPECTION WORK PLAN

of

LARRY LANDRY DUMP

(LAD985169804)

Prepared By

Marcus A. Pinzel, FIT Geologist

Ecology and Environment, Inc.
Region VI

November 27, 1990

ecology and environment, inc.
1509 MAIN STREET, DALLAS, TEXAS 75201, TEL. 214-742-6601
International Specialists in the Environment

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PREFACE

This Screening Site Inspection Work Plan Report was prepared by Ecology and Environment, Inc. for the U.S. Environmental Protection Agency under Contract Number 68-01-7347.

SCREENING SITE INSPECTION WORK PLAN

OF

LARRY LANDRY DUMP

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1. INTRODUCTION

The Ecology and Environment, Inc. (E & E) Region VI Field Investigation Team (FIT) was tasked by the U. S. Environmental Protection Agency (EPA) under Technical Directive Document (TDD) F06-9002-14 to develop the Work Plan for the Screening Site Inspection (SSI) of Larry Landry Dump (LAD985169804) in Intracoastal City, Vermilion Parish, Louisiana.

1.1 SCREENING SITE INSPECTION OBJECTIVES

The SSI evaluates the potential risks associated with hazardous waste generation, storage and disposal at the site. It expands upon data collected during the Preliminary Assessment (PA) and identifies data gaps. Information obtained during the SSI supports the management decision of whether the site proceeds to the Listing Site Inspection (LSI) or receives the classification of No Further Action under the Superfund Amendments and Reauthorization Act (SARA).

1.2 SITE DESCRIPTION

Larry Landry Dump (LLD) is located off Louisiana Highway 333, one mile north of Intracoastal City, Vermilion Parish, Louisiana (Figure 1). The site is located on private land owned by (b) (6) [redacted], who leased part of it to Mr. Larry Landry. Mr. Landry used the land as an open dump for various oil field and solid wastes from offshore drilling rigs. The geographic coordinates are 29°47'52" north latitude and 92°09'03" west longitude (Figure 1).

LLD operated in the early 1980s and ceased operations when the owner proposed raising the rent. LLD utilized three waste piles near salt-stained soils from drilling muds (Figure 2).

LLD operations have accumulated various solid and liquid wastes generated from offshore oil rigs. Previous sampling inspections have revealed high concentrations of salt, oil, grease, barium, cadmium, chromium, lead and zinc. Organic constituents are unknown.

The site operator did not initiate artificial means of containment for the air, ground water or surface water routes. The piles of waste material were disposed directly onto the ground, and containers in which wastes were placed are deteriorating. The extent of involvement of the Louisiana Department of Environmental Quality (LDEQ) is unknown.

2. NON-SAMPLING DATA

Non-sampling data pertaining to source waste characteristics, and the ground water, surface water, soil exposure and air pathways are addressed in this section.

2.1 SOURCE WASTE CHARACTERISTICS

The property associated with the Larry Landry Dump was inspected. Materials and areas which could be considered potentially hazardous were identified.

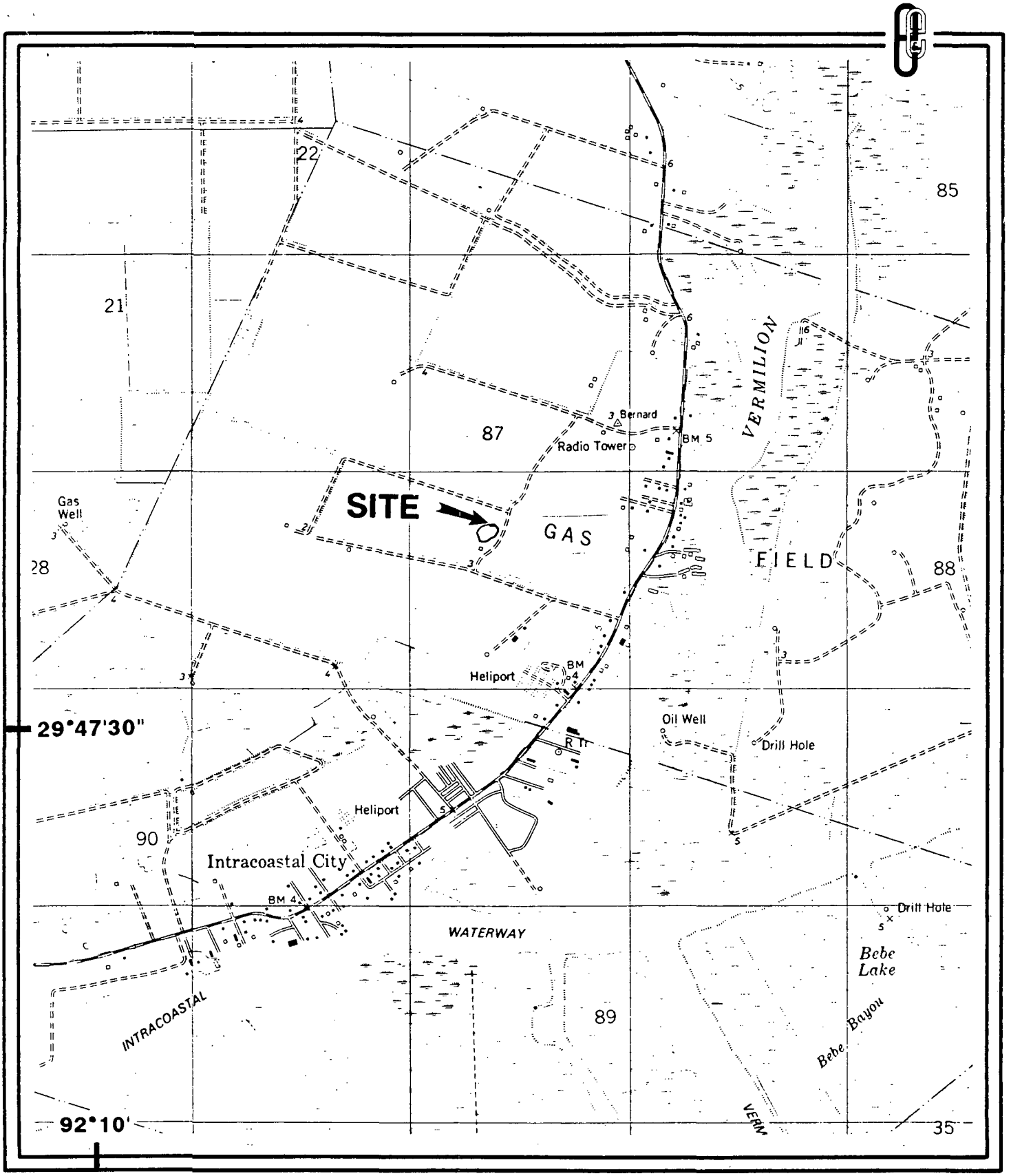

FIGURE 1
SITE LOCATION MAP
LARRY LANDRY DUMP
INTRACOASTAL CITY, LOUISIANA
LAD985169804

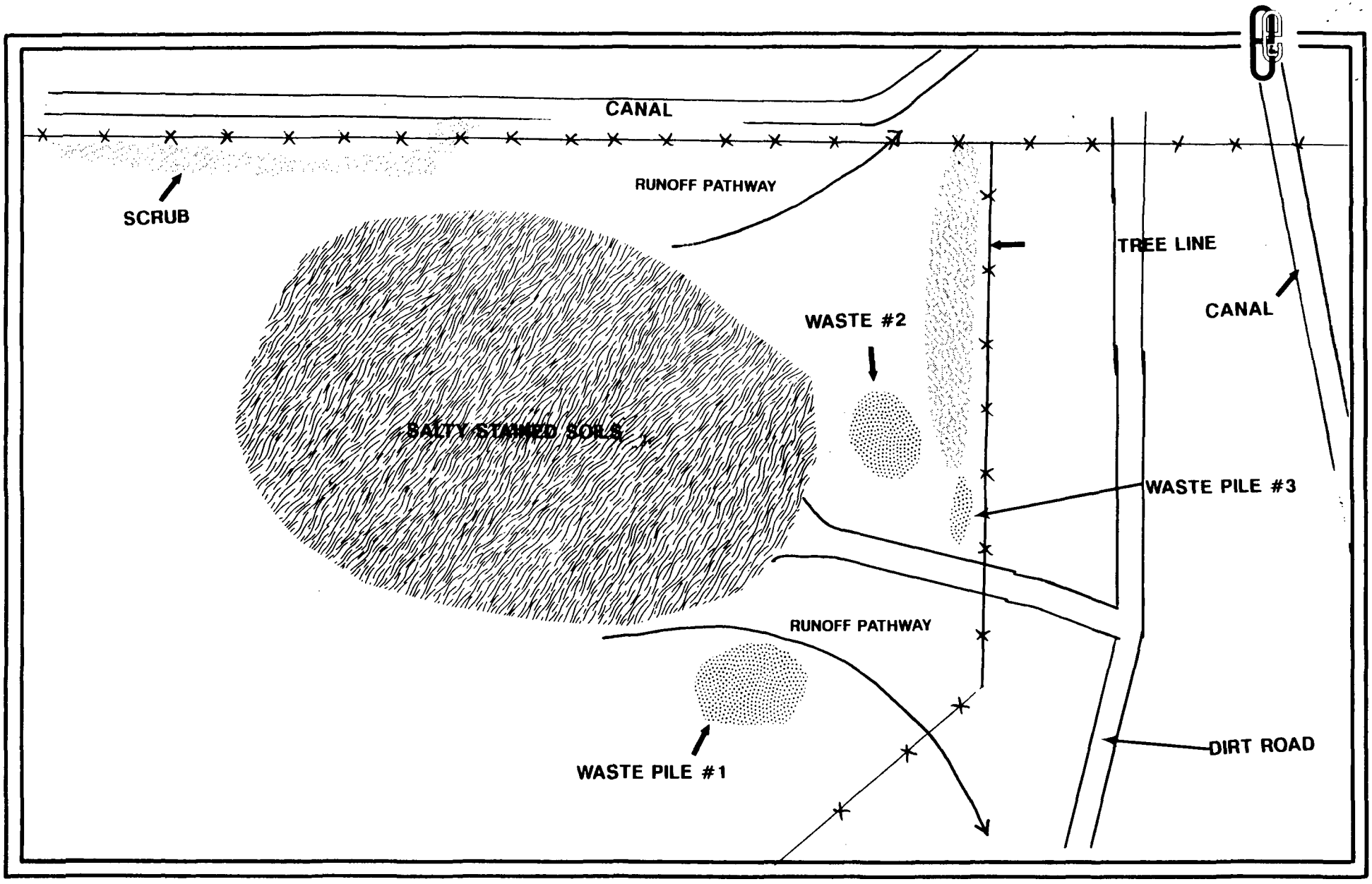

FIGURE 2
SITE SKETCH
LARRY LANDRY DUMP
INTRACOASTAL CITY, LOUISIANA
LAD985169804

2.2 GROUND WATER PATHWAY

The facility is situated over the Chicot aquifer system, which consists of thick sand and gravel deposits which dip and thicken southward from southern Vernon Parish. The Chicot aquifer thins to the west as it continues into Texas. It thickens to the east, where it is overlain by alluvium from the Atchafalaya and Mississippi Rivers, making the Chicot and Atchafalaya aquifers hydraulically connected.

The Chicot aquifer is the main source of drinking water in southwest Louisiana and is divided into two units: the upper sand and the lower sand. The upper sand ranges from 100 to 250 feet in thickness. The Vermilion River recharges the Chicot aquifer near Bancker, five miles north of the site.

LLD is situated over 200 feet of clay, under which lies 150 feet of freshwater sand (the Abbeville Unit).

The nearest well, owned by (b) (6), is located 2,200 feet east of the site, at a depth of approximately 500 feet. (b) (6) uses her well water for domestic purposes and purchases her own drinking water. Previous well surveys indicated at least two additional wells within a one mile radius of the site.

2.3 SURFACE WATER PATHWAY

The on-site reconnaissance inspection delineated the primary overland runoff pathways from the site (Figure 2). Potentially contaminated on-site soil areas are drained by these pathways. Potential contaminants from the site could enter surface water from any direction. The drainage would flow into a north-south ditch that parallels the access road. The drainage ditch empties into an east-west ditch that flows into the Vermilion River 1/2 mile downstream. The next five miles of the 15 mile stream segment are in the Vermilion River, and the final nine miles are in Vermilion Bay. The Vermilion River is designated for primary and secondary recreation and for propagation of fish and wildlife. Potential sensitive environments affected by the in-water segment include wetlands (estuarine) and habitats used by the Peregrine Falcon and the Atlantic Ridley Turtle.

2.4 SOIL EXPOSURE PATHWAY

There is no on-site residential population and no known exposure to residents on-site via contact with hazardous substances. A locked gate blocks the access road to the site and "No Trespassing" signs are posted.

2.5 AIR PATHWAY

Evidence from on-site sampling indicates high concentrations of inorganic constituents such as barium, cadmium, chromium, lead and zinc. The gaseous and particulate mobility potentials of these contaminants are low.

3. SAMPLING DATA

The existing analytical data and sampling methodology are addressed in this section.

3.1 EXISTING ANALYTICAL DATA

Existing information consists of the PA prepared by the FIT. The FIT reconnaissance inspection (Photographs 1 through 5) was conducted on November 12, 1990 by FIT members Marcus A. Pinzel, Michael Mitchell and Kurt Soutendijk. During the inspection, the FIT met with (b) (6) representative, Mr. Jim Jones.

(b) (6), a concerned citizen, and Mr. Paul Conzelmann of SUBRA Laboratories in New Iberia, Louisiana, conducted a sampling inspection at the site in 1984.

3.2 SAMPLING METHODOLOGY

The pathways of concern are ground water, surface water and the on-site migratory routes. Preliminary existing information indicates a potential for contaminant migration via these three pathways. The FIT proposes the collection of five ground water samples, 10 soil samples, three surface water samples and one FIT derived waste sample, including background, blank and duplicates (Figure 3) (Table 1). Of the five ground water samples, four will be shallow water samples collected with the Geoprobe. Of the 10 soil samples, four will be collected with the Geoprobe. The samples will be analyzed by the Contract Laboratory Program (CLP) for TCL inorganic compounds. The on-site samples will be used to identify contaminated source areas which may be contributing to off-site migration. The proposed sampling date is the week of December 9, 1990.

4. PROJECT MANAGEMENT

Key personnel, level of effort hours and community relations are addressed in this section.

4.1 KEY PERSONNEL

The FIT Team Leader for this investigation is Marcus A. Pinzel. The team leader's responsibilities include assuring site access, overseeing all on-site and off-site activities and documenting and managing all samples collected.

The Site Safety Officer (SSO) is Kurt Soutendijk. The SSO is responsible for developing and implementing the health and safety protocol for the site inspection. Three additional FIT members will assist with sampling, sample documentation, packaging and decontamination procedures.

The EPA Region VI Project Officer for this investigation is Bartolome J. Cannellas.

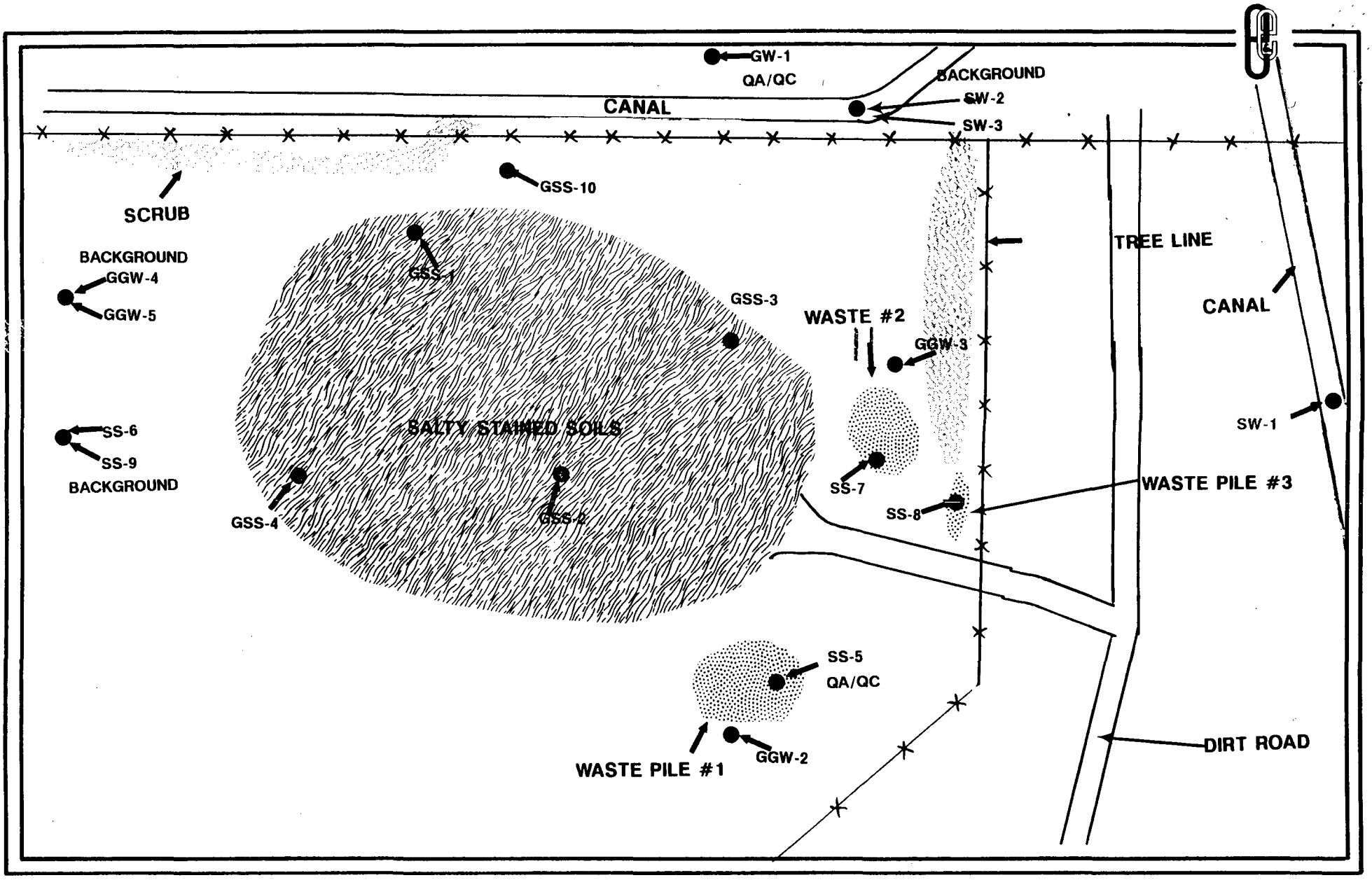

FIGURE 3

SAMPLE LOCATIONS
LARRY LANDRY DUMP
INTRACOASTAL CITY, LOUISIANA
LAD985169804

TABLE 1

PROPOSED SAMPLE LOCATIONS AND RATIONALE

Sample No.	Sample Type	Sample Location	HRS Rationale
GSS-1	Soil: 3 feet bgl	North salt stain	Ground water pathway
GSS-2	Soil: 3 feet bgl	South salt stain	Ground water pathway
GSS-3	Soil: 3 feet bgl	East salt stain	Ground water pathway
GSS-4	Soil: 3 feet bgl	West salt stain	Ground water pathway
SS-5	Soil: 0-6" interval	South pile	Surface water pathway (QA/QC)
SS-6	Soil: Dup of SS-9	Same as SS-9	Surface water pathway
SS-7	Soil: 0-6" interval	North pile	Surface water pathway
SS-8	Soil: 0-6" interval	Fence pile	Surface water pathway
SS-9	Soil: 0-6" interval (bkgd)	Far west	Surface water pathway
GSS-10	Soil: 3 feet bgl	North canal	Ground water pathway
GW-1	Ground water: Stock well 500 feet bgl	Well	Ground water pathway (QA/QC)
GGW-2	Ground water: 8-10′ bgl	Geo south	Ground water pathway
GGW-3	Ground water: 8-10′ bgl	Geo north	Ground water pathway
GGW-4	Ground water: 8-10′ bgl (bkgd)	Geo far west	Ground water pathway
GGW-4			
GGW-5	Ground water: duplicate of GGW-4	Same as GGW-4	Ground water pathway
SW-1	Surface water	Down canal	Surface water pathway
SW-2	Surface water (bkgd)	Up canal	Surface water pathway
SW-3	Surface water: duplicate of SW-2	Same as SW-2	Surface water pathway
TB-1	Trip Blank		

4.2 LEVEL OF EFFORT

The level of effort (LOE) hours required for this inspection are listed in Table 2.

4.3 COMMUNITY RELATIONS

Persons requesting site information will be instructed to submit a Freedom of Information Act Request to: Freedom of Information Officer, U.S. EPA Region VI, 1445 Ross Avenue, Dallas, Texas 75202-2733. Reporters will be instructed to contact the Office of External Affairs at 214/655-2200.

TABLE 2

LEVEL OF EFFORT HOURS

Labor Task	Estimated LOE Hours
SSI Work Plan Preparation	32
Off-Site Data Collection	16
Site Safety Plan Preparation	10
Obtain Access/On-Site Reconnaissance	16
Mobilization	10
Travel	30
Sampling	160
Demobilization/Travel	30
Follow-Up Data Collection	16
Sample Data Validation	60
Preparation of SSI Report and HRS PreScore	120
Plus 10% Contingency	
TOTAL EFFORT	550

Samples Required

10 Low Concentration Soil Samples
5 Low Concentration Ground Water Samples
3 Low Concentration Surface Water Samples
1 Trip Blank
19 Total Samples